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Decimal Weights and Measures.

If our Congress, at its approaching session, can find time to do anything for the people, we would invite their attention to a reform in the present system of weights and measures. Our currency is celebrated throughout the civilized world for its simplicity, and a system of decimal weights and measures, would, when once introduced, prove equally beneficial. Our present system is not only objectionable from its compound ratios, but it is otherwise needlessly complex. What, for instance, is gained by using one kind of weight for grocers, another for jewellers, and a third for apothecaries? The French have partially introduced a reform of this kind, and we hope that before long we may be enabled to use a complete decimal system of currency, weights, measures and, indeed, everything used in computations. If any of our Congressmen will take this measure in hand, and get it placed upon our Statute Book, we will set him down as a public benefactor, and send him a copy of the "Scientific American" for one year, gratis.

Cure for Deafness.

A new discovery has been made to relieve deaf persons. Two aurists in London have invented an instrument which is placed within the ears, without projecting, and being of the same color of the skin, is not perceptible. It enables deaf persons to enjoy the general conversation, to hear distinctly at church, and at public assemblies; the unpleasant sensation of singing noises in the ears is entirely removed, and it affords all the assistance that possibly could be desired.—[Ex.

[We want some more light on this subject of hearing.

Great Feats in Diving.

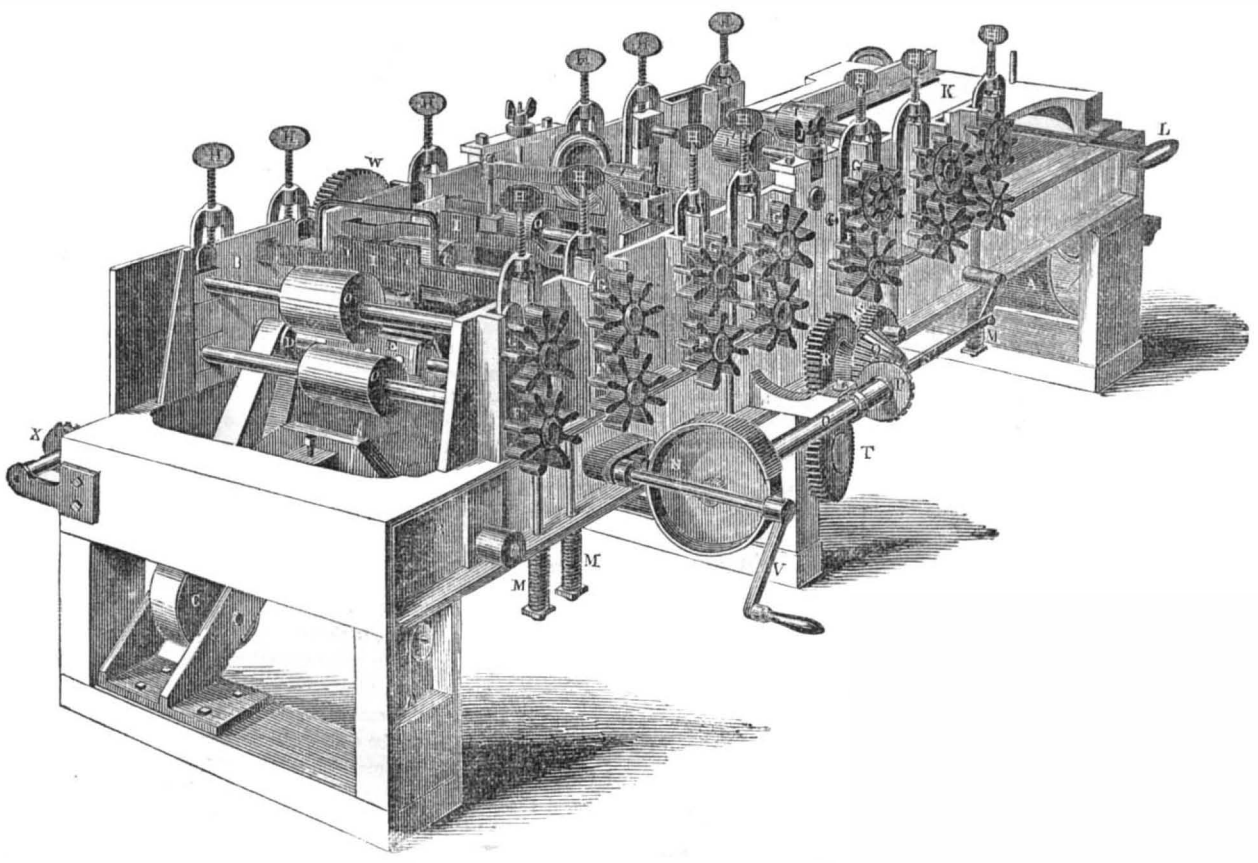
Among the remarkable feats of diving lately performed in Bath, England, it is mentioned that a seaman dove down with a pair of laced boots on his feet and a pair of Wellingtons in his hand, but returned to the surface wearing the Wellingtons and carrying the laced boots. He afterwards dove with a jacket and a pair of trowsers in his hand, dressed himself while under water, and on returning to the surface took a pipe filled with tobacco from his pocket, struck a light and smoked while floating on his back.

Furs of Monkeys.

The importation of monkey skins is an important business in Salem. The "Gazette" says: "Monkeys skins have formed an article of commerce for several years, and we dare say that many a fair lady has strutted her brief hour in all the glory of a monkey skin muff and rat skin gloves, without suspecting the quality of her finery.

A correspondent of the Builder urges the use of Indian ink for State papers, as carbon is its base, which is indestructible when preserved from damp and other equally injurious influences. The writing in Doomsday Book, after the lapse of eight centuries, is in better preservation than the state papers of the last two Kings of England.

HAWKINS' STAVE DRESSING MACHINE.---Fig. 1.



We present our readers this week with engravings of Wm. Hawkin's Stave Dressing Machine, patented July 22, 1851, and now on exhibition at the Crystal Palace.

Figure 1 is a perspective view of the machine, showing its principal parts and their mode of arrangement.

A is a driver, to which motion is communicated from the prime mover by a belt passing over a pulley on the same shaft, not shown in the engraving. There is upon this shaft, at the same end, a small pulley, over which a band passes, giving motion to a larger pulley upon a shaft, on which are placed the feeding rollers. B is the frame, made of cast-iron; C is a friction pulley, changing the direction of the belt which passes over D, giving motion to the cutters, E. F F F and G G G are the star gearings connecting the upper and lower series of rollers; H H are thumb-screws for elevating the upper series of rollers to accommodate varying thicknesses of staves. I I are cross bars holding brushes for clearing the staves of chips. J J are thumb screws for elevating the top cutter for cutting different thicknesses; K is a table on which the staves are placed as they are fed in; L is a handle for shifting the belt from the loose to the fast pulley, giving motion to the feed rollers; M M are spiral springs holding the upper feed rollers firmly against the stave; N is an elliptic cam, giving the requisite reciprocating motion to the cutters working the bilge upon the stave. Q is the shaft of this eccentric, on which is a mitre wheel, P, receiving its motion from Q, which is connected with a pinion upon the third feed roller (omitted in the engraving by mistake) and gearing with S. R is a spur wheel gearing with T, upon which is a pin actuating the lever, N', communicating reciprocal motion to a crank, U, upon a shaft, at the opposite extremity of which is another lever, giving motion to the sliding rod seen in the center of the right-hand side of the engraving, which, by pressing against the end of the stave first passes it between the feed rollers. V is a handle for shifting the cutters to a different width of stave. W is a large spur wheel communicating motion to the feed rollers. X is a mitre wheel giving motion to a cam which elevates and depresses the cutters, for the purpose of making the stave thinnest in the middle.

Figure 2 is a view of the cutters and the arrangement by which they are varied to cut the stave thinnest in the middle. A is a shaft upon which is the eccentric cam, B, which, by its friction against the yoke, D, elevates and consequently gives motion to E, which is connected at F with the bearings of the shaft, G, on which are the knives, I; these bearings work in slides. H is a pulley rotating the knives.

Figure 3 is an end view of the same arrangement, the letters on which refer to the same parts as on fig. 2. This machine is at work at the Crystal Palace, and performs well. We bespeak for it the attention of all those interested in this class of machinery.

More information may be obtained by letter addressed to the proprietors, Wells & Hill, at Milwaukee, Wis., or Buffalo, N, Y.

Figure 2.

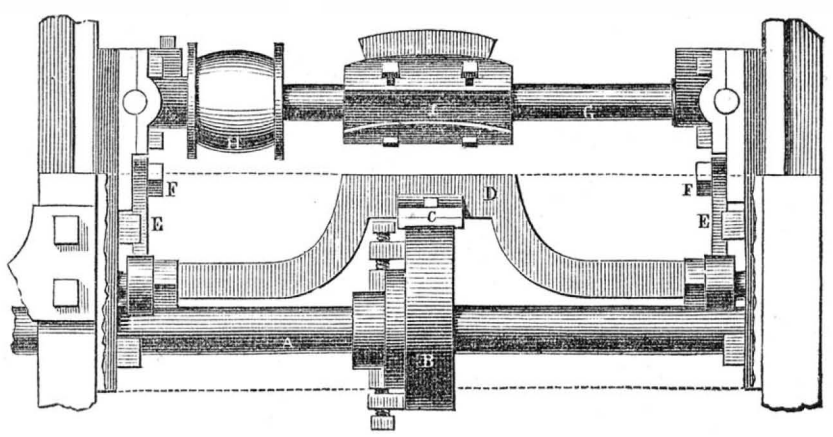
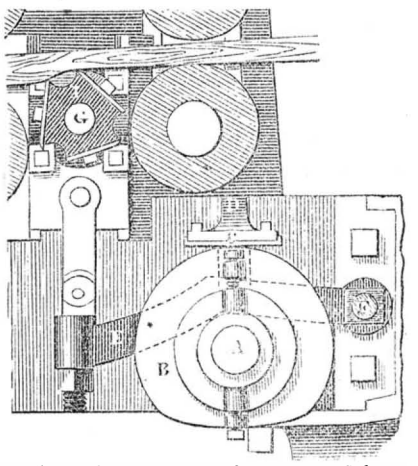


Fig. 3.



Sweet Potato Vines.

A correspondent of the "Georgia Telegraph," states that the vines of the sweet potato may be saved during the winter and used in the spring for propagating a new crop. In the Fall, any time before frost takes place, the vines may be cut in any convenient length, and placed, in layers, on the surface of the earth, to the depth of twelve or eighteen inches, cover the vines, whilst damp, with partially rotten straw, (either pine or wheat will answer) to the depth of six inches, and cover the whole with a light soil about four inches deep. In this way the vines will keep during the winter, and in the spring they will put out sprouts as abundantly as the potato itself when bedded. The draws or sprouts can be planted first, and the vine itself can be subsequently cut and used as we generally plant slips.

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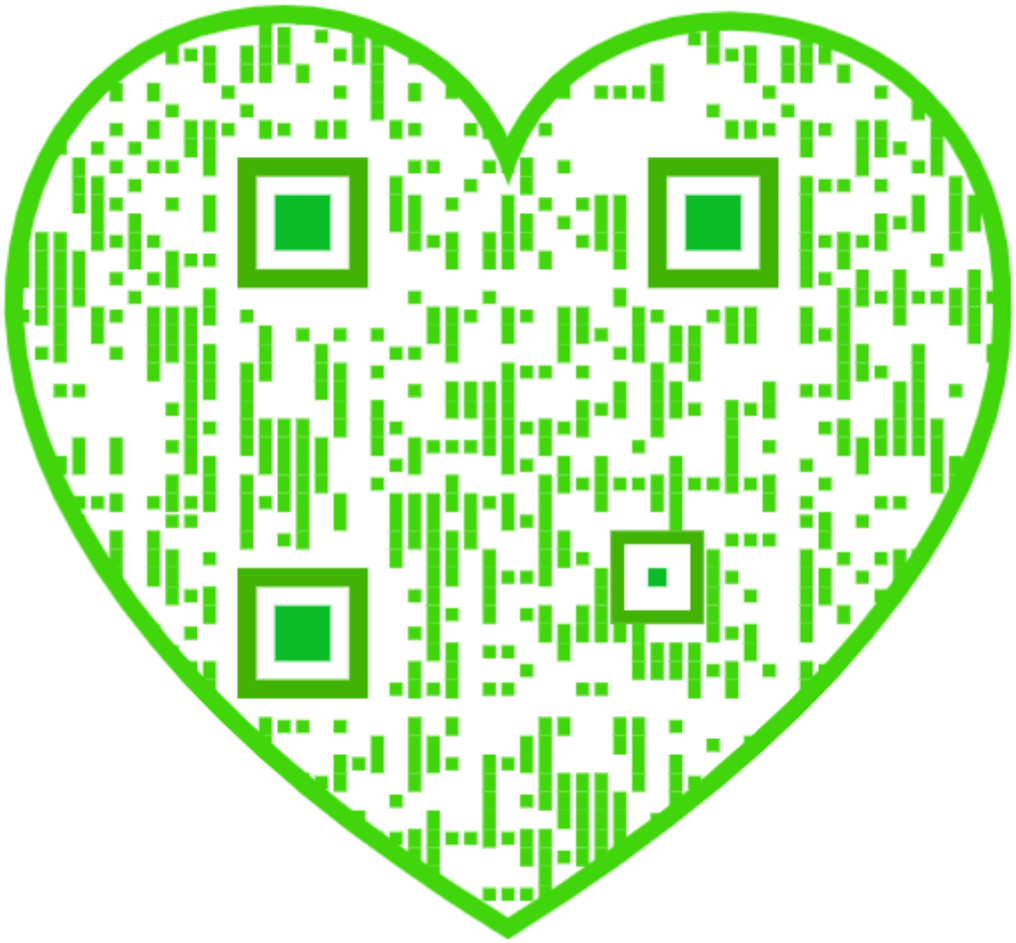

Reaping Machines.

We present an abstract of a paper read before the British Association for the Advancement of Science, which recently met in England. The author of it is A. Crosskill, the favorite constructor of Bell's reapers, and perhaps the most extensive manufacturer of agricultural implements in England, it will be seen that—naturally enough—he awards the praise to Bells' Reaper. Leaving that opinion to the one side, as a historical document, the paper is valuable.

The application of machinery to reaping corn, excites at this time as much interest amongst mechanical engineers, as any subject to which their attention has of late years been directed. Upwards of 30 patents for reapers were taken out in England during the first six months of the present year, and we find amongst the patentees men of every degree, from Whitworth of Manchester, the first machine maker of the day, to country wheelwrights and blacksmiths.

A machine for reaping is mentioned by Pliny, as having been in use amongst the ancient Gauls, and we learn from Palladius that the body of the machine rested on an axle which connected two wheels. To this axle a pair of shafts were fixed, into which a steady ox was harnessed, not in the usual manner, but as a stable boy would say, with his head where his tail should be, consequently, when he walked on, instead of pulling by the shafts, he pushed by them, and drove the implement into the standing corn. The means adopted to cut and deliver it are not given with sufficient clearness to enable us to understand them; doubtless they were very primitive, but the fact of such a machine having been used by the Romans and Gauls is beyond doubt.

In 1812, the late Mr. Smith, of Deanston, brought out a reaping machine, which appeared at intervals with different modifications until the year 1835, when it worked very successfully at the meeting of the Highland Agricultural Society at Ayr. At that time, it consisted of a revolving cutter, 5 feet diameter, composed of thin steel segments bolted on an iron ring, and the gathering of the cut corn was effected by rakes, placed on an upright cylinder just above the cutter, which brought it off in a regular swath. The horses walked behind the machine, and were fastened to it by a pole or by shafts; in 1835 it was laid aside and not again brought forward.

In 1822 an attempt at reaping with a large circular cutter was made by a Mr. Mann, of Raby, in Cumberland, but unlike other inventors who had used the same form of cutter, he placed the horses before the machine, and they walked by the side of the standing corn, like the American reapers, brought to the Great Exhibition of 1851. This machine, like Smith's, was in existence for some years, but finally disappeared from public notice in 1832.

There is one more ancient reaper to which I would draw your attention on account of the great resemblance it bears to McCormick's Virginia Reaper, which attracted so much notice during the last two years. In 1822, a Mr. Ogle, of Rennington, near Alnwick, invented a reaping machine, which was worked upon wheat and barley, but as it received no encouragement only one was made. This machine was illustrated and described in the 5th Vol. of the "London Mechanics' Magazine" of 1826, and was in almost every important feature like McCormick's.

We need not be at a loss for an explanation of the failure of all these schemes, many of which possessed considerable merit. Until the last two or three years manual labor has been easily obtained in this country, and at harvest time especially a large number of Irishmen came over to England and obtained a livelihood by assisting farmers to gather in their crops.—Owing to the rapid increase of emigration, however, this temporary assistance becomes every year more and more precarious, and will in all probability entirely cease, and by a fortuitous coincidence, the demand for reaping machines thus occasioned, occurred at a time when public attention was directed to them, in consequence of the prominent position occupied in the Great Exhibition of 1851. Amongst the American contributions in the Crystal Palace, were two reaping machines, one invented by M'Cormick, of Chicago, and the other by Hussey, of Baltimore, models of which I have on the table.

They are by no means the only reapers in use in the United States, the great demand in that country having called into operation numerous inventions for that purpose, but the two above mentioned are very extensively patronized. The annual sale of M'Cormick's machine amounts to about 1,500, and that of Hussey's from 800 to 1,000.

It will be seen in both cases that the horses draw the machines after them, and walk by the side of the uncut corn. In both also, the main wheel that carries the machine, gives a reciprocating motion to a bar which has double edged knives fixed upon it, and these knives pass between guards or fingers, against which the corn is cut. The shape of the knives and guards varies in both machines, as may be seen by the models. M'Cormick's cutters form an angle with the bar of from 20 to 30 degrees. and have their edges serrated. The cutting of these is very little assisted by the guards or fingers, but they have an action similar to a saw, and the slight inclination of the cutters prevents the corn from yielding as it might do from a straight knife. The cutter of the first machine brought by McCormick into the Great Exhibition, consisted of a straight serrated edge, but the knives with edges inclined both ways, are far superior to those originally used.

A reel or fan is employed to press the corn towards the cutter, and it is also useful to raise and collect that which is laid or which inclines from the machine.

The corn when cut falls upon a wooden platform, and a man riding upon the machine rakes it off at the side in sheaves or bundles.

The cutters used by Hussey, make an angle of 70 or 80 degrees with the bar, and are much more accurate than those used by his rival.—They are plain edged, and their action is to chop the corn between them, and the guards through which they pass. This form of knife is found objectionable here, from the soft and yielding nature of many of our English grasses and weeds, which, instead of being cut, bend through the guards, and in time choke up the knives. To obviate this, it has been found advisable to shorten and give them a serrated edge, similar to the improved ones used by M'Cormick; and it is very remarkable that both Hussey's and M'Cormick's cutters, which differed so widely when first brought by their respective makers into this country, have given place to a very similar knife, which is now used in both machines.

Hussey's machine has no fan or reel, but a man rides upon it in such a position, that he can, by using a rake, bring against the cutters that corn which lies away from them and requires his assistance. When cut it falls upon a platform, and after a sufficient quantity to form a sheaf has accumulated, the man pushes it off with his rake.

These two machines have been repeatedly tested, both in this country and in the United States. At the Great Exhibition of 1851, the Council Medal was awarded to McCormick.—Mr. Hussey not being in this country, and having no one to exhibit his machine in action, did not receive a similar honor.

In the September of that year, he arrived in England, and by working his machine in competition with M'Cormick's before practical farmers, he obtained for it a large share of public approbation. In 1852, Hussey's machine was victorious at the meeting of the Royal Agricultural Society at Lewis, and at varions trials of less importance, while M'Cormick's carried off the prize at the Great Yorkshire Agricultural Society at Sheffield and achieved other victories.

Both machines have, however, been defeated at every trial this season, by a third candidate, which I shall now proceed to describe.

In the year 1826, the Rev. Patrick Bell, now minister of Carmylie, in Forfarshire, invented and constructed a reaping machine, and succeeded in making it work so well, that in the year 1829 the Highland Agricultural Society awarded to him the sum of £50 for his invention. During that and the following years, above a dozen were made in and about Dundee, and some of them used by practical farmers, but the redundancy of manual labor, coupled with the difficulty of keeping in order machines of a somewhat complicated character operated so decidedly against their use, that most of them were gradually laid aside. Mr. George Bell, the brother of the inventor has, however, persevered in working the machine, and has had one in use every year since 1830, by which he has obtained great experience, and become thoroughly acquainted with the various obstacles to be encountered in the harvest field.—In 1852 when the American reapers were sent northward, Mr. Bell put his old machine into thorough repair and met Hussey's at the meeting of the Highland Society at Perth.

The judges unanimously awarded the prize to Bell's machine. This machine is different from both the Americans, and for novelty of invention, no resemblance exists between it and any other that had been made, except that the horses follow the machine, a mode of propulsion which, as we have seen, was in use at the time of the ancient Romans.

The cutting is performed by a series of shears or scissors, each moving blade being double edged and cutting both ways.

As the corn is cut, it is pressed back by the revolving reel upon the canvas, which has a rapid motion sideways, and which turns it off in a continuous swath. The canvas is inclined at a considerable angle, and the corn in falling turns partially over, so that the heads lie all one way, with great regularity.

The horses walk behind the machine, and propel it by means of a pole passing between them, to the extremity of which they are yoked; a man walks after them, and by means of this pole, guides the implement. By bevel wheels the canvas may be reversed so that the corn can be delivered on either side of the machine. The machine cuts a width of full six feet.

In acknowledging our debt of gratitude to the Americans for bringing over their machines, and directing public attention to the subject, and also for demonstrating in a manner that must have convinced the most sceptical and prejudiced, that reaping by machinery was as practicable as threshing, it must be a source of national pride to find that we had in Great Britain, an implement equal to any brought from foreign countries, and which only required an opportunity to be fully appreciated.

There is one more ingenious invention which we owe to our transatlantic brethren, namely, Atkin's automaton or self-raking reaper. This was brought over last autumn, and exhibited in motion at the Polytechnic Institution, London. The horses go before the machine, and the corn is cut and delivered on to the platform by a reel similar to M'Cormick's, but instead of being drawn off by a man, a rake with an action similar to the human arm, gathers up the cut corn, and deposits it on the ground in sheaves. This invention was tried at the meeting of the Royal Agricultural Society at Gloucester this year, and failed, not from any defect in the delivery, but owing to the inefficiency of the cutting apparatus, which had not been tried before it was taken into the field. Being in the hands of such men as the Messrs. Ransomes', of Ipswich, no doubt its capabilities will be developed.

Ink for Steel Pens.

Take twenty lbs. of the best Campeachy logwood, and boil it down for three hours in one gallon of water, taking care to add enough during evaporation, so as to have one gallon of liquor at the end of the boiling. Into this, dissolve 12 oz. of the chromate of potassa, and stir well. It should then be bottled up for use. It does not require gum to hold any sediment in solution—for there is none—like the common inks, made with the sulphate of iron, logwood and galls, or sumac. As there is no acid in this ink, it is the very writing fluid required for steel pens.

Gas from Rosin Oil.

A patent was granted on the 2nd of last September, to Alexis Robitaille, of Quebec, tinsmith, for a new and improved apparatus, and method of working, for obtaining and producing gas, for the purposes of illumination, from rosin and oil, and other substances of like nature, and from the decomposition of water.

Delays of Legal Business in England.

We have received from our intelligent correspondent in London, a letter, from which we extract the following:—"Our legal officers are so slow, together with the long vacation, that we are much annoyed by the disappointment of not being able to send you the parcel by this packet as we had intended. It is no use to find fault with the clerks or officials, the evil is in the system and cannot be changed otherwise than by introducing a better one. Would you believe that for three months in the year the law offices are considered closed, the only attendants being a few overpaid clerks, who consider themselves martyrs to their country in being required to *call* at their offices an hour or two daily; and all this in addition to frequent holidays, varying from one to six or seven days. The Lord Chancellor is one of the Patent Commissioners, he has charge of the Great Seal, which is supposed to be always in his keeping, consequently, if my Lord goes into the country, and a patentee should have run pretty close to his time for sealing, we have to send a special messenger after him to get a seal, at an extra charge of £3 3s. Is it not abominable that the business of the country should be so clogged. Perhaps in the course of a week (please my Lord) we may be able to forward you a parcel, but do not rely upon it until you receive our assurance that it has actually gone.

A strike has taken place here against the sewing machine, which we suppose will end pretty much as such affairs generally do, to the discomfiture of the turn-outs."

From the picture presented above, we do not wonder at the story told of a couple who grew grey while waiting for the English courts to decide whether they had a right to get married. Only think of posting a messenger through the country to hunt up my Lord, who is perhaps shooting pheasants in the Highlands of Scotland, in order to obtain a seal to any public document! And by the by 'my Lord' must have a capacious pocket if he carries those seals with him, for they are as large as the crown of your hat, and as clumsy as that of a New York Dutchman in the days of Deidrich Knickerbocker. The delays are bad enough in our Patent Office, but we can't hold a candle to John Bull in that line. But seriously, we do not wonder at the demand for law reform which is now made in England. The only wonder is that the people submit to it at all. Americans residing out of New York City, never would do this.

Prize for a New Invention.

Moses S. Beach, the publisher and proprietor of the "New York Sun," with his accustomed liberality to inventors, offers a prize of $1000 to any person who will invent a feeding apparatus for his Mammoth Press that will feed-in 3000 sheets per hour to every one of its eight cylinders; he also offers $10,000 for the patent of such an invention. The offer therefore, for the invention is $11,000, and will be open to our inventors until the 1st of January, 1855.

The circulation of the "Sun," it is stated, has become so large that an invention of this kind is demanded, as the hand-feeders cannot exceed 2000 per hour each. It is desired that an edition of 120,000 of the "Sun should be printed in five hours.

Public Amusements.

As many of our readers are visiting the city at the present time, they would perhaps be glad to be informed of some of the places of public amusement most in accordance with their tastes. Besides the theatres, and among the less objectionable places of public resort, we would name the following:—Banvard's Georama of the Holy Land, No. 596 Broadway; Frankenstein's Panorama of Niagara, 718 Broadway; Powell's National Painting, "De Soto Discovering the Mississippi," 663 Broadway; Perham's Mirror of Niagara, Ontario, and the St. Lawrence, 539 Broadway; and at the Stuyvesant Institute, besides Signor Blitz, may be found the gallery of Egyptian Antiquities, and a portrait of Charles I., supposed to be the long lost Velasquez. At Barnum's American Museum, in addition to the other curiosities, are two beautiful specimens of living giraffes.

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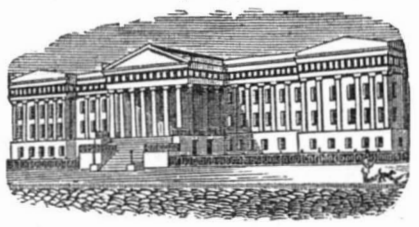

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING OCTOBER 16, 1853.

PROPELLERS—By Ebenezer Beard, of New Sharon, Me.: I claim the use of one or more flanges or rims placed circumferentially upon the blades of a screw propeller, as described.

SOFA BEDS—By E. B. Bowditch, of New Haven, Conn.: I claim the arrangement of hinging the ordinary sofa seat to the back rail of the sofa frame, in combination with the arrangement of hinging an under seat with the upholstered side down to the front rail of the sofa, so that said under seat, by lifting the ordinary seat back, can be turned out of the front of and on a level with the ordinary seat, thus forming a bed

I also claim the arrangement of hinging the stuffed back, to the top rail of the sofa, and attaching the back at the bottom to the top seat, by strips of iron, in combination with the arrangement of hinging the top seat at the back lower corner.

SHUTTLE MOTIONS FOR POWER LOOMS—By Wm. Crighton, of Fall River, Mass.: I do not claim operating the picker by a cam or a short shaft, at the side of the loom, but I claim connecting the two pickers with a rod or rigid connection, which receives motion from a single lever, and one cam, whereby both pickers are operated, as set forth.

[See notice of this invention on page 186, Vol. 8, Sci. Am.]

ATTACHING ARTIFICIAL TEETH TO THE METALLIC PLATE.—By H. S. Crider & David Williams, of Lancaster, Ohio: We claim securing the artificial teeth to a plate, by the usual method and afterwards fastening said plate on the alveolar ridge of the plate having the impression of the mouth, either by r vetting or the employment of soft solder, so as to prevent the application to the plate having the impression, of the intense heat required to secure the teeth, as and for the purpose set forth.

SELF-WINDING TELEGRAPHIC REGISTERS—By James J. Clark, of Philadelphia, Pa.: I claim the combination of the winding magnet, the break circuit wheel, and spring, with the train of wheels of an ordinary telegraph register, in the manner described.

STEERING APPARATUS—By Charles Flanders, of Boston, Mass.: I claim the combination and arrangement of the rope, the two sets of leading blocks, the sheaves in the after end of the tiller with one another, the tiller and windlass, so as to operate together and move the rudder, as specified.

OPERATING MILL SAWS—By Benj. Frazee, of Durhamville, N. Y.: I claim attaching a reciprocating saw blade to the main shaft, by means of a slotted lever and crank pin operating as set forth.

MACHINE FOR MAKING RAILROAD CHAIRS—By Robt. Griffiths, of Newport, Ky., and Geo. Shield, of Cincinnati, Ohio: We claim, first, hanging the fulcra of the clipping and bending levers eccentrically in boxes made capable of circular movement for the purpose of adjusting the said levers to their work with facility and accuracy, as specified.

Second, the method described of adjusting the angular set of the clipping and bending levers, by pivotting and adjustably connecting them to outer operative levers, as set forth, and whereby a varied inclination may be given to the cutting and bending of the clip to suit different thicknesses of blanks or forms of chairs required.

IMPLEMENTS FOR CUTTING CLOTH—By G. W. Griswold, of Carbondale, Pa.: I claim stretching the cloth or other material to be cut, over the two jaws of the stock, and holding it firmly in place by the clamp, whilst the knife divides it with a draw cut, as described.

(See engraving of this implement on page 372, Vol. 8 Sci. Am.)

INSTRUMENTS FOR PLOTTING—By Thos. Hinkley, of Hallowell, Me.: I claim the method or means of obtaining in the machine described, a compound or resultant parallel motion, the same consisting in a combination of pinions or gears and sunken racks (or racks provided with parallel bars), as specified, two sliding and rotary shafts, as arranged, connected, and supported so as to operate together, as described.

CUTTING BOOTS—By Daniel Lynahon, of Buffalo, N. Y.: I claim the tongue which first gives to the vamp a more exact crimped turn, secondly, covers the seam from being seen, and prevents it from ripping, and, thirdly, keeps the seams permanent by receiving the strain that comes on them when drawing on the boot.

POWER LOOMS—By Wm. Mason, of Taunton, Mass.: I claim the method of operating the warp beam to let-off the warps, and ease them in the opening of the shed, by means of the weighted cord acting on the periphery of a wheel geared to the warp beam and receiving motion from an eccentric or its equivalent, as specified, in combination with the mode of regulating the delivery motion by the action of the warps on a weighted whip roller acting by a friction strap on the friction wheel of the let-off apparatus, as specified.

MACHINES FOR FIGURING CARPENTERS' SQUARES—By N. Millington & D. J. George, of Shaftsbury, Vt.: We claim the combination of the revolving chase wheel, with the lateral moving anvil, by which the relative position of the square to be stamped, and the required chase, is so regulated that the line of the square to receive the impression, is brought under the chase, containing the desired figures, as set forth.

POWER LOOMS—By John Pender, of Worcester, Mass.; I claim the rest, in combination with the guides, when constructed as described.

LOOMS FOR WEAVING FANCY GOODS—By B. F. Rice, of Clinton, Mass.: I claim the application of compound levers constructed as described, to raising and depressing of harnesses or heddles, as set forth.

I also claim employing a finger attached to the vibrating lever, operating, as described, in combination with the crown wheel to move the figuring chain, as specified.

I also claim forming a groove in the bars of the figuring chain for the insertion of hooks or pins, or their equivalents, as specified.

AIR BEDS—By Jno. Scott, of Philadelphia, Pa.: I claim forming a bed of an air-tight india rubber cloth sack enclosed or enveloped in a pouch-formed mattress, composed of two thicknesses of ticking or other suitable material, between which is interposed feathers, hair, cotton, or other soft substance retained by proper quilting said mattress, conforming to the shape and size of the air sack when extended with air by flexible pipes.

LIFE-PRESERVING BUCKET—By Nathan Thompson, Jr., of Williamsburgh, N. Y.: I do not claim a double vessel, as such have been employed both as refrigerators and as retainers of heat.

But I claim, first, a double vessel, the space between the outer and inner side thereof being filled with cork or its equivalent, by which it is in a great measure secure against leakage, and retains sufficient buoyancy when punctured, and serves as a reliable bucket and life-preserver.

Second, I claim attaching the handle thereto by means of the tubes, the nicks in the handle, and the bending of the ends of the tubes therein, as described.

LIFE-PRESERVING SEAT—By Nathan Thompson, Jr., of Williamsburgh, N. Y.: I do not claim a life-preserving stool or seat in the general.

But I claim, first, the folding life-preserving seat, with a buoyant divided top constructed as described.

Second, the clasp, in combination with the surfaces on which it slides, constructed substantially as described, and operating to hold the stool either shut or open, as described.

IRON CAR BODIES—By Thos. E. Warren, of Troy, N. Y.: I claim the combination of the hollow sheet metal columns and panels, as described, with the through bolts, holding the top, bottom, and sides all firmly together, as set forth.

[See engraving of this excellent invention on page 388, Vol. 6, Sci. Am.]

CARPET STRETCHERS—By J. W. Weatherby, of Kingsville, Ohio: I do not claim the invention of rack and wheel, or any of these parts separately of themselves, but the general construction and arrangement, to save much time and labor. I therefore claim the general construction and arrangement of the carpet stretcher, made and operated as described.

DOOR LOCKS—By Linus Yale, of Newport, N. Y.: I claim introducing and applying the key from behind instead of in front, as is usual, by means of a permanent wrench revolving key-chamber and the passage, in the manner described.

APPLICATION OF HIGH PRESSURE ENGINES TO SCREW PROPELLERS—By Harry Whitaker, of Buffalo, N. Y.: I claim the direct application of the crank outside of the hull to side screw propellers, when such application is combined with or effected by a high pressure engine, arranged also outside of the hull, as set forth.

Bonnell's Patent Flouring Process.

[Continued from page 43.]

The actual amount or proportion of bran proper, found in the wheat, necessary to make a barrel of superfine flour, is so inconsiderable that its mixture with the flour could do little good, and its rejection no hurt, if with it there was not rejected and lost a large amount of flour material, that is highly nutritious, by imperfection in the manufacturing and separation. The only injury that would follow by finely pulverising the bran, and incorporating the whole of it with the flour would be, the reducing its texture or color below that standard fixed by arbitrary custom as a test of its value, hence, as that custom must be complied with, the art in the manufacture consists in getting the greatest possible amount of flour and nutritive material from the wheat, and rejecting just so much of the bran as will leave the texture of the former agreeable to the standard fixed by society. To do this it must be apparent that the primary and most important desideratum in manufacturing wheat into flour, is perfect and uniform pulverization of all and every part susceptible of being made, or that it is desirable to make into flour. Could this be done, but little judgment or skill is required to separate the flour by bolting and reject the bran. But perfect pulverization cannot be attained by one process of grinding, and the reasons are obvious, when we come to examine the different constituent properties of wheat; the different proportion of these properties in each different variety; the amount varying, too, as the climate in which it is produced varies; mode of culture; time and manner of harvesting, and the different degrees of moisture and dryness found in each crop when delivered at the market or in the mill. Then there is a great difficulty in keeping the mill stones dressed, and otherwise in a proper and perfectly equal condition, besides their operation and effect is constantly subject to variation in motion, and by the atmosphere affecting both the grinding and bolting in its various changes. If the wheat was all in a proper and equal condition in other respects, being composed of about 60 to 70 per cent. of starch, which is soft, porous and tender, and from 16 to 22 per cent. of gluten, which is hard, tough, and elastic, there would still be great difficulty in producing perfect pulverization. The gluten is located in a thin layer around the outside of the starch and immediately under the outer coating of the grain, to which it adheres with great tenacity, and if we attempt to grind so "close" and fine as to divest the bran of all this valuable material, and at the same time reduce it to a proper degree of fineness to sift through the bolts, the extra friction required is liable to reduce the starch too fine, and to produce too much heat, which, affecting the oily or fatty matter in the grain, and uniting with the fine particles of flour forms a sort of paste, and not only glazes the mill stones, but fills the meshes of the bolt cloth and destroys or greatly retards the bolting. Flour ground in this manner may look well enough to pass inspection, but as the angular or gritty quality is too much destroyed, there is a want of what millers call "body" to it, and it is found inferior for bread. If we grind "high" or coarse enough to preserve the good grinding property or conditions of the mill stones, avoid glazing, and preserve a good body to the meal, which ensures good bolting; we cannot divest the bran, feeds, or offal, of the gluten, and a portion of the flour will be so unequally pulverized, that coarse bolt cloth must be used to ensure a "yield," and to associate with the flour that desirable nutritive property which the partially ground particles are known to contain, and which, if obtained by the use of coarse cloth, subjects the flour to be "scratched" in market, by letting through with the flour fine particles of bran, which hurts it only for inspection. If this coarse flour is sifted out, as it usually is, with No. 4, 5, 6, or 7 cloth, and returned back to the superfine bolts, which are covered with 9 and 10 cloth, it is evident but a small portion of it passes through them, and incorporates with the superfine flour, but it passes along the bolts until reaching again cloth of sufficient "mesh" to let it through, is thus returned *ad infinitum*, over-laboring and wearing out the superfine bolts, and is subsequently thrown off with the feeds or offal, or a large proportion of it, making a loss of nutriment to the flour and of profit to the manufacturer.

To obviate these difficulties I propose, by my improved process, to intercept the whole body of the offal, or that which shall be equivalent, as it leaves the tail of the superfine bolts, or at any other convenient place, and instead of passing it into the subsequent bolts, as is usual, submit it immediately and continuously to a second grinding through an auxiliary mill fitted and adapted for that purpose. By this means the starch, having been bolted out, the offal is divested of all the remaining flour material, and all the coarser particles may be pulverized to about the same degree of fineness as that previously bolted out through the superfine bolts. The offal thus ground to any degree of fineness desired, is thrown into the succeeding bolts, or flour dresser or dusters, which should be covered with fine cloth (9 or 10) or any equivalent material; when the flour is separated from the offal, and from the head of the return bolt, the best flour may be sent back or returned to the cooler or superfine bolts, to be incorporated with the superfine or other flour, or it may be packed or used as a separate article of any desired quality.

The flour material being, by the re-grinding, perfectly pulverised and reduced to the same fineness of the starch, the bolt cloth necessarily requires to be finer than that formerly used on all the bolts or dusters, except the superfine, and those used for dividing the feeds, and from the head of each bolt or duster used, the best flour produced should be sent back or returned—not to the cooler in all cases, as usual, but to the head of the next preceding bolt. The next best flour produced along the middle of each bolt should be returned to the head of the same bolt, or back to its own head. And the brown specky material sifted through near the "tail of any bolt," should be sent with the offal to the head of the next bolt or duster that succeeds it. By this means there is no coarse or partially ground flour going back to the first bolts as formerly. The labor on each bolt is uniform and equal, and the flour sent to the superfine bolt from the return bolts, having once been bolted through fine 9 or 10 cloth, will readily pass through the superfine bolts and incorporate with the flour. This bolting, dusting, sifting, and separating may be continued to any extent desired, and if the rule above indicated is carefully observed, or that which shall be equivalent, the fine particles of bran may be perfectly separated from the flour, and the perfect pulverization of the grain will ensure the greatest possible yield of a rich nutritious article of flour, possessing "good body," being ground to an equal degree of fineness and not too fine.

(To be Continued.)

Preserving Animal Substances.

MESSRS. EDITORS:—In number 45, July 23, vol. 8, Scientific American, I notice an article under the head—"To test the purity of water," which reminded me of something peculiar that I had seen myself. It has been stated that rain water was an antidote to cholera; while in England, two years since, on a visit to the distinguished Andrew Crosse, Esq., the great chemical electrician, among other experiments, he placed a putrid ox hide in a bath of electrified water, where it remained four hours; when taken out it was as pure from smell as when it was taken from the animal. In reflecting upon this experiment afterwards, it occurred to me that if such an effect can be produced upon a dead mass, that it must inevitably produce equal effects upon the living, hence I applied Crosse's discovery to electrified baths. Referring to the assertion that the use of rain water was an antidote to cholera, I tried to examine into the causes, why. That it is the purest water will not be denied, unless it be electrified water, patented by Crosse, and illustrated in vol. 7, Scientific American. Now if rain water passes through the atmosphere in its descent, (which is always more or less charged with electricity,) and descends electrified water, which is an antiseptic, may not this be the cause why rain water, in its constant use, is an antidote to cholera? I am, very respectfully,

W. H. R.

Havana, Cuba, 15th Sept., '53.

[Although we have seen it stated a number of times, that rain water is an antidote to cholera, we have no positive testimony in proof of the alledgment. If it is an antidote, it is not owing to its antiseptic qnalities, which are far inferior to those of many spring waters. Rain waters are no more electrified than well waters, because, when they fall to the earth, they are in a state of equilibrium, electrically, with the earth.

Large Ship.

The "Newburyport Herald," referring to the launch of the Great Republic, says:—

"Mr. McKay, we hear, will immediately commence the construction of a ship larger than this, which he is to build by contract.

"The theory has been started of building a ship so large, that she will pass through the ocean with comparatively little motion, ploughing directly through the waves, without rising upon them, and so high above them that the highest waves will always be below the decks. It is a daring thought, but in view of what has been accomplished already, who will venture to denounce it as absurd? There are those bold enough to predict, that a ship will yet be built that will pass through the stormy waves on the ocean with as stately a progress as a vessel of a hundred tons through a river in the same gale."

[That such a ship can be built we have no doubt at all, but it will have to draw about 50 or 60 feet of water. Such a vessel could enter very few ports in the world, because there is not a sufficient depth of water to float such a vessel. It would not be wise, we think, to build vessels of such magnitude. There is certainly a limit to the economic size of vessels, but what that is we cannot tell, nor can any other person at present; experience alone can settle this question. A ship named the Columbus, built at Quebec, in 1824, by Charles Wood, was nearly of as large tonnage as the Great Republic. It was launched with 4,000 tons of cargo on board. It was 300 feet long, 50 feet in breadth and 30 feet deep. Her speed was so very great that she took *only* 54 *days* to cross the Atlantic, anchored safely in the Downs, and in a storm was afterwards driven on the coast of France, and wrecked. There is certainly a great difference betwen the voyage of the Columbus, 54 days, and the Sovereign of the Seas, 14 days—so much for 29 years progress.

Guano Accumulations.

A writer in the "North British Agriculturist" states that he has examined all the Islands in the rainless latitudes of West Africa, and that all the guano that was found upon them has been removed. He states that one foot of guano accumulates on Halifax Island in Angra Pequina Bay in three years. This would amount to 1333⅓ feet in 4000 years. This certainly overthrows all the arguments that were advanced to prove the great age of this planet by some who have calculated that the guano of the 300 feet hills in the Lobos Islands required a ccumulations for ages before, it is recorded our world was created.

The Great India Rubber Case.

On the 20th inst., at New Haven, Ct., Judge Ingersoll refused to grant an injunction in the case of Horace H. Day versus L. Candee & Co., of New Haven, which was argued there a few weeks ago, before the U. S. Circuit.

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New Inventions.

Machinery for Washing Ores.

R. Edwards, of Eagle River, Mich., has invented an improved machine for washing ores, for which he has taken measures to secure a patent. The machine consists of an obtuse conical basin suspended from a ring, which ring hangs loosely around a vertical shaft, which, by its revolutions, actuates a pair of rollers, one of which traverses a stationary circular rack, and the other as it passes around elevates in succession the different sides of the ring, and consequently of the suspended basin. Over the centre of the basin, and attached to the revolving vertical shaft is placed a hopper, in which the crushed ore or other substance to be washed, is placed. The outlet of the hopper being on the same side of the shaft with the elevating rollers, the ore constantly falls upon the elevated side of the basin. It is a very good invention.

Improved Paddle Wheel.

A. M. Glover, of Walterboro, S.C., has invented an improved paddle wheel, for which he has applied for a patent. This improvement consists in the employment of a float concave laterally to the wheel, but straight in a direction radial to the axis, and also in arranging the floats in such a manner as will prevent more than one float, or a portion of two equivalent in their propulsive effect to one, from being submerged at a time. The advantages claimed are a greater propelling effect by saving the power uselessly expended in driving a number of floats through the water at the same time, and also the removal of the jar caused by the concussion of the ordinary floats.

Improvement in Converting Motion in Planing Machinery, &c.

James Pine, of Hoosick, N. Y., has invented a new mode of converting circular into reciprocating motion, especially adapted to planing machinery. The invention consists in a new arrangement of a disc, stud, and other devices, by means of which, when the machinery has passed over the fixed bed, aud arrived at one end, a bevel wheel is thrown out of gear with one, and into gear with another corresponding wheel, by means of which the motion is reversed, and it is made to pass back again over the stationary bed. The inventor has taken measures to secure a patent upon his invention.

Anti-Friction Journal.

Lewis Smith, a worthy mechanic of Brooklyn, has shown us an anti-friction journal which he thinks would supercede all others if once introduced. This journal does not run in a box, but is made hollow and after having been partially filled with lard or some other lubricator is placed against a pivot, and bears upon this and a friction collar. The plug or pivot is also surrounded with a ring of india rubber or other suitable substance to prevent the escape of the lubricating material. We should think it well adapted for certain kinds of bearings.

Improved Excavator.

Francis Murphy, of Dixon, Ill., has invented and applied for a patent upon an improved excavator for use upon railroads and other public works. This improvement consists of a share or scraper, which loosens the earth and raises it sufficiently to enable it to be received upon an endless apron, by which it is carried up to the required height, and may be deposited directly from this or carried by another endless apron to the side of the machine. We can see no reason why it should not perform the duties required of it.

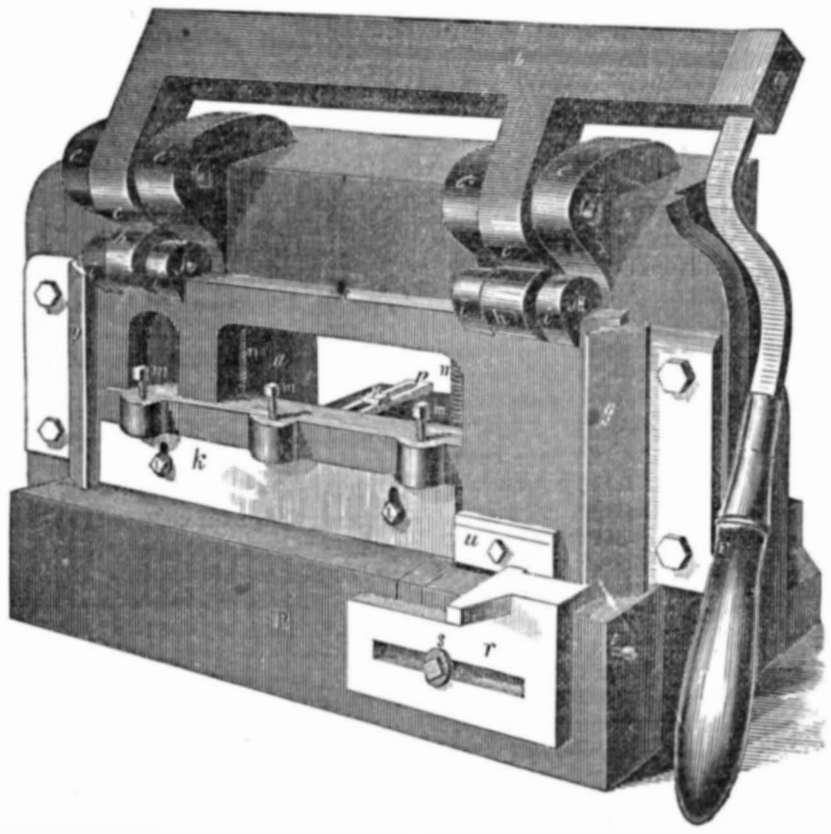
Improved Cutter Stock for Planing Machines.

Joseph Osgood, of Brockport, N. Y., has invented a cutter stock for planing machines, and has applied for a patent upon his invention. It consists in the employment of an elastic face attached to the stock and arranged so as to bear upon the board and prevent the cutters from obtaining too much feed, said elastic face yielding so as to allow any sliver to pass from the cutting edge of one knife to that ot the next, thus preventing the board from being marred, as is too often the case in planing machines.

New Mode of Hanging Saws.

L. & M. Taylor, of Jordan, Wis., have invented a new mode of hanging saws, which is certainly sufficiently novel. The saw is perforated with holes at regular distances throughout its entire length, and four rollers, two at the top and two at the bottom of the saw, are fitted with studs, which mesh into these holes, and serve at once for straining, guiding, and propeling the saw. An alternate motion is of course communicated to the rollers. The inventors have applied for a patent.

MACHINE FOR SCORING AND CUTTING PAPER BOXES.



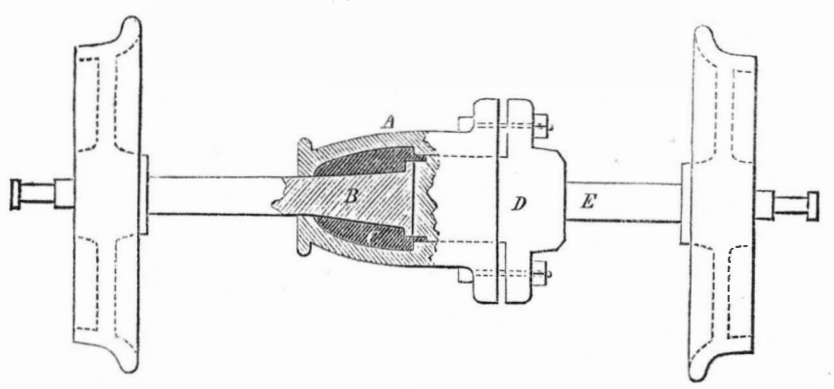
The annexed engraving is a perspective view of a machine for cutting out the corners and securing the edges of paper for boxes, for which a patent was granted Dec. 4th, 1850, to Andrew Dennison, of Brunswick, Me.

a a is a substantial frame; B is the bed plate; *b* is a rocker beam at the upper extremity of the frame; it has two cams, *c c*, projecting from the under side. This beam is hung to the frame by the pins, *d d*, passing through the cams and into the ears, *e e*, on the frame. Below the cams is a slide, *f*, fitted to play up and down in the guides, *g g*, and at the upper extremity of the slide directly under each cam, there is a friction roller, *h*, inserted in the ears, *i i*, on the slide and made to turn on the pin, *j*. At the lower extremity of the slide is a knife, *k*, secured firmly to the slide by the bolts, *l*. Directly above the knife are the set screws, *m*, to set the knife in the proper position to cut the depth required. At one end of the knife is a die, *u*, with two cutters at right angles with each other, one being on a direct line with the knife. There is a square hole the exact size of the die cut through the bed plate directly under said die, which allows the die to drop into it; *p* is a gauge at the back of the knife, secured by bolts, *q*, and made to move back and forth according to the size of box to be cut.—In front of the die is another gauge, *r*, at right angles with *p*; it is secured to the bed plate by the bolt, *s*, is adjustable by the set screw, *t*, to accommodate the size of box required to be cut, and is made to move back and forth; *n n* are spiral springs to throw up the slide. The paper board to be cut, being first made square, is laid against the gauges, then by a simple vibration of the lever, F, the cams by acting upon the friction rollers, press the knife and die against the paper board, the die passes through the paper, and cuts a square piece out of the corner, while the knife cuts only half way through the pasteboard, which is then turned a quarter round and another corner cut out and the side marked by the knife, and so on, until the four corners of the paper, or pasteboard, are cut out, when it is in proper form for making a box. The improvement is applicable to the cutting out the corners of the paper or pasteboard, for any size of boxes.

The claim is "the combination of the knife and die, in the manner substantially as described," and the improvement is both simple and effective for the purpose set forth.

This machine is on exhibition at the Crystal Palace.

DENNEY'S CAR AXLE.



The annexed engraving is a front view partly in section, of a car axle, invented by S. L. Denney, of Christiana, Lancaster Co., Pa. The object of this axle is to give to each wheel an independent motion to allow the wheels of cars to accommodate themselves to the curvatures of tracks. One of these axles is on exhibition in the Crystal Palace.

A is the connecting box, in which the coned end of the axle, B, revolves; C is a space fitted with composition metal, forming a bearing for the axle. That part of the connection, D, which acts as a follower against the end of axle B, is shrunk fast on the end of axle E, and is secured in the connecting box by screw bolts passing through the flanges of both. The surface of axle B, at the end, and the connecting follower, D, are so large as not to wear perceptibly. The coned shape of the axle prevents it from becoming so tight by screwing up the bolts, as not to turn readily when operated upon by the friction caused by the wheels in turning a curve. The objections to a connected axle for two wheels is the liability to wear uneven, get loose and become useless after being in use some time. Mr. Denny has devoted much attention to this subject, and an illustrated description of one formerly invented by him was published in No. 2, Vol. 3, "Scientific American." He has been forced to the conclusion that a connected axle to answer all purposes, and remain strong and durable, can be made, and the above represented one he believes will answer all demands.—The advantages claimed for this axle are durability, strength, a saving of tracks on curves, a saving of motive power now wasted on rigid axles in passing curves, which is often the cause of torsion, breaking of axles, and consequent danger of life and property. Any improvement in car axles which will be the means of increasing safety and lessening expense, should meet with attention from our railway companies. To determine this, protracted and fair experiments are necessary. We believe that all railroad corporations should devote a certain amount of money every year to rational experiments under the superintendence of their scientific and skillful superintending engineers. Many of them do this, and that to their credit.

More information may be obtained by letter addressed to the inventor.

Submarine Telegraph.

T. P. Shaffner, Secretary of the American Telegraph Association, called upon us last week and showed us a section of the telegraph cable which he has laid across the bed of the Ohio river, at Paducah, Ky. We described this cable on page 400, Vol., 8, "Scientific American," and must give Mr. Shaffner great credit for constructing such an excellent submarine conductor. Some of the European telegraph companies are ahead of ours in respect to submarine telegraphing. This is no doubt owing to England being an island, and the focus of telegraphic enterprize in Europe. Thus for example, there is one submarine telegraph line across the channel to France, another to Ireland, and a third to Holland. This latter, we believe, is the longest submarine cable in the world; it traverses no less than 100 miles of the German Ocean. A short time ago the King of Holland made a speech at the Hague, on the opening of the States General Assembly, which was translated, sent to England, and published in less than two hours afterwards. We have seen it stated in a number of our exchanges, that R. Stephenson, the celebrated engineer, while in this country, recently, made the assertion, when conversing about an Atlantic telegraph line, "it had been discovered that when a double wire was used on a line, instead of a single one, the electric current could be sent, without any sensible diminution of force, to any distance." This, so far as our knowledge extends, is destitute of any foundation in fact.

Engineers' Railway Clock.

John N. Robertson, of Columbus, S. C., proposes a time table clock for engineers on locomotives, which is worthy of attention as a most useful improvement. He has sent us a diagram of this "time piece" with a folding dial, on the outside circle of which, on one side is the time table of the Charlotte and South Carolina Railroad, for the up, and on the other side a like time table for the down trains. The distances between the stations are laid out on the outer circles, and the hands of the clock point to the hours and minutes which are laid out on an inner circle. The clock is to be made perfectly tight and secured to the locomotive in front of the engineer. It may be regulated and locked by the local superintendents, which will prevent disasters arising from a difference of time in the different watches of the conductors or engineers. By such a clock the engineer will know at a glance the rate at which he should run his engine to arrive at the exact time at every station.

The "Arm Pad" illustrated in our last number may be had of L. Stockwell & Co., 86 Nassau street. Communications should also be addressed to them.

Daniel B. Martin, late engineer in the Collins' line of steamships, has been appointed Engineer in Chief of the Navy.

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Scientific American.

NEW YORK, OCTOBER 29, 1853.

Mechanics, Farmers, and Lawyers.

When the Crystal Palace, in this city, was opened amid the pealing notes of orchestra and organ, and when to witness that splendid pageant, soldiers, clergymen, lawyers, and literary characters were appointed to conspicuous positions, while the sons of industry and invention were passed over as nonentities, we took occasion to express our views freely on the subject, and to point out the slur that was thereby cast upon some of the most worthy men in our country. That was a case which called freely for rebuke, and it was honestly given. We have now something to say by way of rebuke to our mechanics and farmers, for it is the duty of an honest press to give censure to whom censure is due, as well as honor to whom honor is due.

Our mechanics and farmers are justly to blame themselves for the negative position which they generally occupy on all public occasions; they compose the mass, the overwhelming majority of our population, and yet by their acts they virtually say, "we ar as nobody in prominent affairs," and they bend low and are led and guided by the superior intelligence or duplicity of another class—our lawyers. If a speech is to be made at an agricultural dinner or Fair, a lawyer is the man selected for the purpose. If an address is to be made before a Mechanics' Institute, a lawyer is sure to be the oracle on such an occasion also. By this conduct our farmers and mechanics virtually acknowledge that they are totally incompetent to discuss the very questions which belong to their callings, and with which they should be most particularly acquainted, and that another class have all the intelligence and the civil qualities which command their respect. Is it a strange thing, then, that lawyers should rule our country in every department, that the President, every one of his Cabinet, all of our Foreign Ministers, the very Collectors and Surveyors of the port of New York should be "lawyers all?" It is indeed strange, but the fact is easily accounted for. Do we blame our lawyers for this? No. The very statements we make is the highest compliment we can pay them, and inversely a rebuke to our farmers and mechanics. Our lawyers, we believe, possess more general information than any other class of men in our country; if this be not true, how is it that such a small class as they are, among such an immense population as ours, exercise an influence on the destinies of our country, greater than that of all other classes put together.—There is no disputing this assertion; they are the arbitrators and rulers of our country. It may be said, "their business peculiarly fits them for governors and rulers of the people." This is true in a measure, but yet to understand law, it is not necessary to be professionally a lawyer. This, however, is not the point to which we have peculiarly directed the attention of our mechanics and farmers. Our object has been to point out the folly, the absurdity, the weakness, and admitted want of ability in our farmers and mechanics, selecting others out of their own circles to address them upon the very subjects with which they should be best acquainted themselves. A reform is certainly demanded among our industrial classes in the matter of self respect and self dependence.

Patent Office Report for 1852---No. 1.

We are indebted to Senator Seward for a copy of Part 1, of the Patent Office Report for last year, which was presented by the late Commissioner Hodges. It has taken a long time to get it before the public, but the printing and paper are so superior to former reports, that we must give Robert Armstrong, our meed of praise for this great improvement in Congressional printing. There is a happy departure in this report from that of Mr. Ewbank's last, which did not contain any of the Examiner's comments, the excuse being that patentees whose inventions had not been noticed, found fault with previous Reports. The excuse was not sufficient to compensate for the pleasure and profit always derived from the comments of Examiners on the prominent improvements which have been patented during the year.

We learn by this Report that the total receipts of the Patent Office during 1852, were $112,056,34; total expenditures $74,531,92, and $21,384,99 refunded, leaving a balance over expenditures of $16,139,43, nearly double the amount of surplus of 1851, which was $8,-821,68. No less than 2,639 applications were made for patents, out of which number 1,020 were granted, and 1,293 rejected, the rest not being acted upon It is stated that the applications examined, probably cost no less than 7,000 examinations, some, no doubt needlessly. There were 381 more applications in 1852 than in the previous year. The Commissioner alludes to the caloric engine, and exhibits the same want of correct knowledge of the subject that has been displayed by so many writers, prominent for scientific information. We shall carefully review the Report of of the Engineering Examiner in our next number.

We admire the firm stand taken by Commissioner Hodges against the misappropriation of any portion of the Patent Office, to other objects, than to the legitimate purposes for which it was originally designed.—A valuable portion of the building is now occupied by the Secretary of the Interior, while the Patent Office proper is curtailed for want of room; this unquestionably interferes with the business of the office, and the models of the patented inventions are in such a crowded condition that it is almost impossible to make proper examinations. The Report also says:—

"The models of rejected applicants have been heaped upon one another, lost from search, exposed, to injury, many of them broken, their component parts destroyed, and not a few entirely destroyed." Our inventors have never yet had justice done to them by the principal officers of our government, and in no particular case have they been so meanly treated as in the way they have been deprived of the use of the Patent Office to conduct its business properly. When a Museum was wanted for the products of the Exploring Expedition, one was procured by tumbling the models into the cellar of the Patent Office. When offices were required for the Secretary of the Interior, they were soon found by chicanery, in the new wing of the Patent Office. To get space for the transaction of the legitimate business of the Patent Office, the Commissioner and his staff of Examiners were sent begging throughout the nooks and cellars of the the very building that was erected for their especial use, with inventors money.

A complete separation of the Patent Office, into a Department, one in itself, not under the dominion of the Secretary of the Interior, is advocated. This accords with our own views.—We believe it should be entirely distinct from any other, as its interests, business, &c., are of a very peculiar character. Amendments to the patent laws are discussed and the wilful infringement of patents, to be held criminal, is suggested. This recommendation requires careful consideration; at present, it appears to meet our views, but we may yet see that such a measure of protection might prove more injurious to the interests of patentees than any good they would derive from it; it may savor of what Bacon called "the last infirmity of a good man—indiscreet indignation against vice." On the whole, the Report is a good one, it is terse, clear, and breathes the right spirit.

Our Naval Steamers again---The Latest Failure.

We are determined to ding away at every disgraceful evil connected with the engineering departments of our navy, as we did with the evils of steamboat boiler explosions—until a reform is effected, so thorough that our navy steamers, instead of being a laughing-stock to our people, and a disgrace to our country, will be an honor and a subject of pride to every American citizen.

A correspondent of the New York "Journal of Commerce," speaks of the Alleghany as follows:

"The necessity of naval reform is a stale, but not unprofitable subject. Navalabortions come so thick and fast upon us, that we pass them by without notice. But, as the U. S. steamer Alleghany has been relied upon as a proof of the new skill and energy infused into the Navy Department, and as her admirable machinery and performances have been made the theme of much newspaper puff, I cannot help stating the substance of the last authentic report from her.

"This steamer was built at Pittsburg, and has altogether cost the Government more than eight hundred thousand dollars. She was repaired and furnished with new machinery, &c., at Norfolk, under the direction of the Department. It was intended to send her to China with the Minister, R. J. Walker, who refused to go out in her. But the other day she was ordered for the Brazil station, and pronounced to be one of the finest ships in the service.

"With a great flourish of trumpets, the Alleghany, after her contractor had been discharged, proceeded on a trial trip from Norfolk. She got under weigh at Norfolk, on the 5th October, at noon, and the same night, at 9 o'clock, anchored in Lynn Haven bay. The next morning she went out to sea, fifteen miles beyond the capes. She returned to Norfolk on Saturday the 8th, and anchored in the harbor, with her forward frame engine broken clear through the center, with her aft engine much broken, and with a leak in her hull in the wake of the engine. She and her machinery are worthless, and she is to be brought up the Potomac, and will be condemned, and probably broken up."

[The above "Alleghany" is an iron vessel, and was first built in 1847, in Pittsburg, from plans by Lieut. Hunter, U. S. N., and was fitted with his patent wheels, for which, no less than $10-320 00 were paid. Her whole cost, then, was was $290,053 72. Her burden was 1200 tons,—for a steamer of such a size, the cost was enormous. When completed she descended the Ohio and Mississippi rivers, to New Orleans, then went round to Norfolk, Va., at the astonishing rapid rate of 4·92 knots per hour. She was afterwards sent on a cruise to the Mediterranean, and made the wonderful amount of 45½ days' sailing in two years, consuming 1940 lbs. of fuel per hour. After her return, in 1849, the Hunter wheels were condemned, and the common paddle wheel recommended, by a board of two Chief Engineers of the Navy, the Engineer of the Washington Navy Yard, the Chief Naval Constructor, and a commander of the Navy. Now, amid such a quantity of "*Chief Engineers*" as there is in our Navy, it would naturally be inferred that whatever changes were made in this way, they would be for the better, but alas, the above recorded feat of the "Alleghany improved," is like a piece of putty placed on the ugly nose of an ugly picture.

It seems that it took from 1849 (thus showing the inefficiency of our Naval Department) to 1853 to make amendments to this ship. These consisted of improving the hull, by putting in additional iron ribs, and extra braces in stern and bow. For the old engines, new cast iron frames were made; also a new propeller and shaft, and a great many of the minor parts of the engines. The engines were placed athwart the ship, the one forward of the other "novelly arranged," it is said, and four new piston rods, and one new piston, new cross heads, and guides, were said to be "ingeniously devised by Chief Engineer, B. F. Isherwood," for each engine. These alterations were made under the immediate supervision of W. P. Williamson, U. S. N., at the works of A. Mahaffy & Co., Portsmouth, Va. This vessel was also fitted with one of Pirrson's Condensers, and with such alterations, (great improvements, said to be,) it was predicted that she would attain the speed of nine knots per hour. We do not know what it cost to make these alterations, but we suppose they will come up to $100,000 at least, according to the usual luxuriance of navy jobs. The defect—in appearance—has been in the frame of the engines, and this has been trumpeted by some of our daily papers, as the real cause of failure, because, as they say, the frames were of *cast iron*, instead of wrought iron. But the frames may have been good; the engines may have been badly arranged, put together, or misproportioned, and thus have racked the frames. The old Cunard steamers had all cast iron frames, and many voyages did they make across the Atlantic, without a single break down, so it is not because the frames of the Alleghany were of cast iron that they were broken, but because they were either poor cast iron, or the engines miserably arranged.

Those gentlemen who are "Chief Engineers," and "Engineers in Chief," in our navy, many of whom are very able men, have their character at stake, and they must do something to retrieve it. They must do something meritorious, that will wipe out the disgrace of the many steamer failures in our navy. We really dislike to notice such affairs, because it is humbling to our national character, and were it not a matter of duty, we would forbear to do so, but we shall hammer away at such evils, until they are ground to powder, and until our naval steamers, as they should and can, will be the pride of our country, and the admiration of the people of all nations.

Hours of Factory Labor.

We have been informed that the mills of Lowell have adopted the system of eleven hours for a day's work, and that many other mills in Massachusetts and New Hampshire have conformed to the same rule. We believe that the factories in New York still work their twelve hours per diem, but for a long time they have been in advance of those in our Eastern States in this respect. We have been a consistent advocate for the reduction of the hours of factory labor, and in doing so have always avoided violent language, and opposed violent measures. We have counselled our manufacturers to adopt the very policy which they have embraced in Lowell, with the exception that they have not yet gone far enough—namely, to the "ten hour system." But then it may be the best policy to approach the mark by degrees, and not too suddenly.

In Pennsylvania and Rhode Island the hours of factory labor have been shortened by law; it is a pity that such laws are required, but oftentimes they are. In 1846 a law was passed in England for regulating the hours of factory labor; it was called the "ten hour system." By it, children under ten years of age, and young females under 17, we believe, could not be employed over ten hours per day, and on Saturdays only seven hours. The mill owners had also to provide the means of education for the youth in their employ; adults could, by contract, labor for a longer period than ten hours, but then the law virtually reduced the hours of factory labor to ten per day. It was a pity that such a law was required, but it was a just and wise measure, and has proved to be a most beneficial one both for manufacturers and operatives. Those who, before it passed, predicted that it would injure the manufacturers and reduce the products of manufacture, have been happily disappointed, and the very manufacturers who opposed it, would not go back now to the old system upon any consideration. The effect of that law, in that country, has been to improve the condition of the operatives, and instead of reducing the products, has rather increased them. The operatives in the course of a year, produce as much by ten hours regular labor daily, as they formerly did in twelve hours. The reason is, they are more active, intelligent, and careful. We believe that no loss would be entailed by all our factories adopting the "ten hour system," but that both employers and employed would be gainers. Our manufacturers and merchants, would find it conduce to their health and happiness to employ more hours in recreation, and a few less in business, than they now do; they should reduce their own hours of labor. It is a great mistake in operatives to suppose that it is all sunshine with their employers; the very reverse of this is often the case. Many employers who, although they make handsome returns, do so at the expense of health the sweets of social intercourse and leisure hours.

The North-West Passage Made.

By the latest news from Europe, it is asserted that Capt. McClure, of the ship "Investigator," who was sent out in search of Sir John Franklin, has achieved the long problematical enterprise which has swamped so many millions of money, and destroyed the lives of so many able men—we mean "a passage round the North Pole,,' as it is called. He did not lose a single man during the whole time he was making the passage. Inhabitants were discovered farther to the North than known previously.

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Machinery used in the Manufacture of Lumber, Staves, &c.—There is in the Exhibition a very good show of this class of machinery. The lumber interests of our country are indeed among the most important, and the ingenuity of our mechanics has been employed in fostering it, by removing many of the most tedious processes of its manufactures from the routine of manual labor. Time was when the weary laborer with the pit-saw, the jack-plane, and the drawing-knife, performed all these operations; a description of the machinery we have been this week examining will be a sufficient commentary on the change which has taken place.

Saws and Saw Mills.—George Page & Co., of Baltimore, Md., exhibit a circular saw-mill in which there are two saws, one directly above the other. These saws are at the side of the carriage, and the log is dogged at the side opposite the saws. We should think this a very good portable saw-mill: it is intended to be propelled either by horse or steam power. By the side of this stands another exhibited by John Stull, of Mellington, Md., having a single saw working above the log. Joseph Harris exhibits a circular saw which is propelled by a friction wheel covered with leather instead of gearing or belting. Charles W. Bemis, of Waltham, Mass., is the manufacturer and exhibitor of a string and a circular saw, which are operated by Parker's method of banding, illustrated and described in the last Volume of the "Scientific American." The string saw is stretched between two working beams, thus dispensing with guides, and by its arrangements is enabled to turn pretty nearly as short around a corner as the politicians of the present day.—Some pieces of boards sawed by it and hung upon the wall are stared at with wonder by many of the passers by. E. H. & S. E. Parsons, of Wilkesbarre, Pa., exhibit a working model of a saw mill, the chief peculiarity of which consists in the mode of hanging and straining the saw. It is attached at the top and bottom to cross-heads, placed longitudinally with the cut of the saw, the front ends of which run between slides; the saw is strained by the friction of the slides above and the action of the pitman beneath, the noddle pin being placed just in front of the line of the teeth, thus straining the saw most at its front edge. We are disposed to think favorably of this arrangement.—There are a few other circular saws, in which we could discover no peculiarities worthy of note.

Planing Machines—John Gibson, of Albany, N. Y., exhibits one of Woodworth's machines. Our readers are all aware of the litigations to which this patent has given rise, but as it expires in 1856, we shall then have an end of them unless the proprietors succeed in smuggling another extension through Congress. This machine is too well known to need description. It has proved itself a valuable invention, both to the public and its owners. Mr. Gibson also exhibits an excellent wood moulding machine. Dunkin & Van Sicklin, of this city, exhibit one of Barlow's patent planing machines, illustrated in the "Scientific American" Vol. 6, page 372. The knives in this machine are vertical, and have a vertical motion in pairs as the board is drawn through the feed rollers. A drawing cut is thus obtained, which enables the machine to work knotty or wet lumber without difficulty. Barlow & Wellington, 551 Broadway, New York, are the proprietors of the patent; the operation of this machine is well spoken of. George W. Beardslee, of Albany, N. Y., has a fine working

GROUP OF ORNAMENTAL PLATE.

model of his machine, which is fully described, with an engraving, in No. 3, Vol. 7, "Scientific American. One of its chief peculiarities consists in the novel arrangement of a sectional endless platform, which is carried forward by pinions from one end of the machine to the other, and returned, presenting a continuous vertical bed against which the lumber rests as it passes through the machine. It also embraces a yielding stock or cutter kept in its place by a spring, thus enabling the cutter to yield in passing over a knot or other inequality. A large number of these machines are now in successful operation, and are giving abundant proof of the value of the invention. He also exhibits a matcher which is used in connection with the planer. Theodore Titus exhibits one of Wilder's planing machines, illustrated in No. 28 of our last Volume. This machine differs from the others mentioned, in having the knives placed horizontally, and in a reciprocating frame, by the backward motion of which the board is drawn in. While the planes are acting upon it, it is held by clamps to the main bed. There is a table at the rear end of the machine, upon which are knives for matching the lumber if required. A. A. Wilder, of Detroit, Mich., is the patentee and proprietor. We have never witnessed the operation of this machine, but understand it to be excellent.

Mortising, Tenoning, and Boring Machines, &c.—Otis & Cottle, of Syracuse, N. Y., exhibit a mortising and boring machine, improved somewhat from the one illustrated in No. 29 of our last volume. It is certainly a well constructed, and we should think a durable and efficient machine. They also exhibit a hub-mortising apparatus, which is an implement, we think, no wagon-maker can afford to be without. We saw a specimen of its work, and we should judge they might safely challenge any workman to compete with it. M. & J. H. Buck, of Lebanon, N. H., have a mortising and a tenoning machine, but no attendant to exhibit their operations. J. A. Fay & Co., of Keene, N. H., have a foot mortising machine; a tenoning machine with rotary cutters, readily adjustable to any size of tenon, and a sash sticker, all of which perform well. J. Adams & Son, of Amherst, Mass., exhibit a felly machine, illustrated in No. 5, Vol. 6, "Scientific American," having vertical cutters attached to a rotary arm in such a manner that they are easily moved from or towards the center of rotation, in order to cut a felly of any required degree of curvature. They are thus left perfectly smooth and true upon their curved surfaces, requiring no after dressing to fit them for use. The proprietors state that it will cut 60 fellies per hour.

Allen, Sherwood & Co., of Auburn, N. Y., have in the Exhibition a prismatic lathe for turning bedsteads, table legs, and other similar articles of a hexagonal, octagonal, or other prismatic shape. It was fully illustrated in No. 34, Vol. 7.

Davis' Corner Dovetailing Machine, is the name of a machine for cutting a peculiar kind of dovetail upon the end of a board, preparatory to its being joined with another in the formation of a box, drawer, or other cabinet work. This is also unattended.

There is also a lathe manufactured by Charles Stuart, a lad of this city, fourteen years of age, which certainly does credit to his skill as a workman. It is a small lathe, for light work.

We now come to a class of machinery that threatens to drive into other employments a numerous class of mechanics, viz., the coopers: we allude to the

Stave and Barrel Machinery—Gwynnes & Sheffield, of Urbana, Ohio, exhibit the Mowry stave machine, it is made entirely of metal, is simple and durable, feeds itself from a bolt of wood (previously steamed), and joints the stave at the same time that it is dressed. There is one objection, however, the same bilge is cut upon a wide stave and a narrow one. Engravings and a full description of this machine was published in No. 30, Vol. 8, "Scientific American." Hawkins' stave dressing machine is illustrated on our first page, this week, so that any remarks here are unnecessary, further than to say that we have seen it at work and it does its duty faithfully.

But while the above are great improvements over the old modes of dressing staves, there are two sets of machinery for performing all the operations of making a barrel except setting up and hooping. W. Trapp & Co., of Elmira, N. Y., are the exhibitors of one of these. The timber is taken in the bolt and presented to the first machine, which saws the staves hollowing to correspond with the size of the board, it is then sawed the proper length, next planed inside and out perfectly smooth (if the timber is good), is next jointed with its proper bilge, is chamfered; howelled, the croze is cut, the head turned, and all is ready to be set up in a barrel.

C. B. Hutchinson's stave and barrel machinery differs considerably from the preceding. Like Mowry's it cuts the stave from steamed bolts, but this is done in a different manner, as the stock moves not only downward, but longitudinally, thus communicating a drawing motion to the knife. The staves are afterward jointed by the action of two circular saws, which are hung in such a manner as to permit the proper bilge to be given the staves, the bilge varying with their width. They have also another machine for crozing and chamfering, and yet others for cutting and turning the head. This machine was illustrated in No. 2, Vol. 5. The inventor's residence is in Syracuse, N. Y.

It would be invidious for us to speak comparatively of these different machines, nor is there any reason why we should; we will only say that when there are so many efficient machines of this kind, those who continue to manufacture barrels entirely by hand are certainly behind the times, and we advise all such to send without delay to some one of the above-named gentlemen and get a machine which will do their work efficiently, in a fraction of the time now required.

We at length have a reliable catalogue of the Exhibition. It contains a full list of the minerals and the pictures. And we will here remark that we find ourselves wholly unable to carry out our plan of giving a description of the statuary and paintings, as we are told the Exhibition will close about the middle of December.

Our engraving this week represents a group of plate, selected from the articles exhibited by Joseph Angell, of London.

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TO CORRESPONDENTS.

W. E. C., of Mass.—The employment of a steel rod for a door-spring, in the manner shown in your sketch, you will find illustrated in the "Glasgow Practical Mechanic's Journal," 1850.

J. B. W., of S. C.—We are not in the habit of giving opinions upon questions of infringement.

E. M., of Pa.—We are glad to learn of the success of your invention, it seems to be a good thing.

C. McM., of Mass.—Personally we cannot say anything about Dr. Brainard's eye cups, and we would not like to give advice unless we were positively sure of their qualities; we must be cautious about such matters.

E. H., of Pa.—The use of air tubes is much older than the magazine to which you refer. You could not secure a patent for it. After your patent is issued for the "Stack" we can publish engravings of it upon receipt of the Letters Patent.

E. B., of Wis.—We do not see anything new in the sketch which you send of Trusses.

J. T. O., of Ala.—The passing of the feed water through the furnace is a bad plan: on reflection you will come to the same conclusion. We shall have something new on furnaces, next week. The greatest heat should be applied nearest to the steam space.

J. D. C., of Ind.—Black lead is not manufactured, it is found native, and is called graphite. There are large deposits of it in New Hampshire, and other places.

W. R. M., of Ind.—Yours has been received.

F. H., of Ohio—There is no tin plate manufactory in the United States. There is no reason why tin plates cannot be manufactured here; but the question is, "can they ever be made as cheap as in Wales?"

J. R., of Mich.—You must send us a better description of you marine governor; we cannot, from your letter, understand what you mean.

W. B, S., of Phila.—We have never seen a pipe running through a steam ship, and employed for a condenser; but it has been proposed to us to use the lowest section of iron ships for this purpose.

G. McC., of ——.—We cannot advise you in regard to the planetarium, we suppose it not a very profitable matter to engage in. The calculating machine is simple, and we think new—you had better send us a model.

T. T., of R. I.—We do not know where you can get pure plumbago—it is very difficult to obtain, and frequently there is great trouble experienced with our electricians; Daniell's battery is used, and the excitant is the sulphate of copper and glauber salts. The Ocean Telegraph, without a wire, we are afraid, would be more expensive than laying down a cable. Give all these things, in relation to economy, your careful consideration.

J. N., of S. C.—You will find in this week's number a description of the same device as you describe.

J. H. S., of Pa.—A parcel containing your engraving and 12 copies of the Sci. Am., were sent to you by Harnden's Express on the 15th inst—before your letter containing $1 was received. The "Illustrated News" has taken an electrotype of the engraving, and will no doubt publish it.

W. N S., of N. H.—Your explanation is very satisfactory. We should feel obliged for the receipt.

S. L., of Pa.—We avoid all speculations in inventions. We have no desire to become interested in any patent. we leave that to others.

W. H. C., of Ill.—You can sell an invention before the patent is issued. Applications are examined in classes. no one can tell how long it might remain in the office before examination, all depends upon the amount of business in the department.

H. S., of Ky.—Your agent has called upon us several times, we intend to publish the "anchor" soon, the "saw doctor" we have been unable to discover among the mass of articles on exhibition.

E. T. S., of Ga.—The plan you propose for ventilating cars is not new. Mr. Heckrote, of this city, invented the same thing more than two years since. We believe it incapable of performing well.

D. F. F., of Pa.—There is no novelty in a double flanged car wheel. We cannot recommend an application for a patent.

J. C. R., of Iowa—Without the aid of drawings we cannot clearly explain the construction of Porter's Rifle. We do not know where the Prussian Needle Gun can be purchased. We are not aware that any changes have been made in the composition.

P. W., of Mass.—Your window sash fastener is not new or patentable. Essentially the same device is in use.

J. M., of Ill.—The benefit to exhibitors is the great publicity which is given to the articles they contribute in the Palace. As for the matter of curiosities merely, the exhibitor, we suppose, must rest satisfied with the honor, throwing aside all idea of gain.

J. M. N., of Vt.—We have no doubt of the novelty of your furnace for drying starch. If it is capable of performing well it is a good thing.

R. W. G., of New York.—The public and ourselves have entertained the opinion, that the voyage of the W. Norris was to be made in six days from New York to Liverpool. This will be corrected next week.

C. A., of C. E.—Your alleged improvement in "trucks" does not, in our opinion, possess any patentable feature. Essentially the same device has been shown us before.

S. W. McA., of Tenn.—If Mr. Broad has a machine as good as you say, you cannot do any better in this section. We know nothing of his business, as he has made no application through us.

S. B., of Philadelphia.—An inch is the twelfth part of a foot, and the thirty-sixth part of a yard; the latter bears to a pendulum vibrating seconds in a vacuum in New York at 32 degs., the relation of 1.000,000 to 1,086,141. There is a pretty quantity of uncertainty about our "Rules."

Money received on account of Patent Office business for the week ending Saturday, Oct. 22:—

L. P., of Vt. $20; J. M., of Ct., $60; E. H. P., of Ct., $20; G. H. H., of Pa., $10: D. A. H., of N. Y., $50; A, N. N., of Ind., $55; G. M. R., of N. Y., $25; C. H. P., of N. Y., $100; D. S. D., of N. Y., $20. T. B., of N. Y., $10; S. W., of N. Y., $20; D. W. B. & Co., of Pa., $500; S. E. P., of Pa.. $55; J. B., of Mich., $20: S. R. D., of Pa., $27; S. W., of L. I., $60: W. M. L., of N. Y., $32. W. L., of N. Y., $25; J. H. C., of N. Y., $40.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Oct. 22:—

L. R., of Vt.; J. O., of N. Y.; S. W., of N. Y.,; C. C., Jr., of Mass.; W. L., of N. Y.; J. H. C., of N. Y., C. & D., of Pa.; F. M., of Ill.

A Chapter of Suggestions, &c.

BACK NUMBERS—VOL. 9.—The first three numbers, Vol. 9, being so nearly exhausted, we are led to announce that in future we shall not furnish the back numbers to any but those who pay for a full volume in advance. Half yearly subscribers cannot be furnished with the first numbers of the volume, unless the applicant is pecuniarily unable to remit the full amount, in which event his case will be exempt from this rule, by his making such statement in the letter which accompany's the remittance.

MISSING NUMBERS—Mail Subscribers who have failed to receive some of the numbers of Vol. 8, are informed that we are able to supply them with any of the numbers, from 1 to 52, EXCEPT the following, and these we are ENTIRELY out of—Nos. 2, 3, 4, 10, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 26, 47, 48, 49, 50, 52.

TO CORRESPONDENTS.—Condense your ideas into as brief space as possible, and write them out legibly, always remembering to add your name to the communication: anonymous letters receive no attention at this office. If you have questions to ask, do it in as few words as possible, and if you have some invention to describe, come right to the business at the commencement of your letter, and not fill up the best part of your sheet In making apologies for having the presumption to address us. We are always willing to impart information if we have the kind solicited.

PATENT LAWS, AND GUIDE TO INVENTORS—We publish and have for sale, the Patent Laws of the United States—the pamphlet contains not only the laws but all information touching the rules and regulations of the Patent office. Price 12 1-2 cents per copy.

BINDING.—We would suggest to those who desire to have their volumes bound, that they had better send their numbers to this office, and have them executed in a uniform style with their previous volumes. Price of binding 75 cents.

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RECEIPTS—When money is paid at the office for subscriptions, a receipt for it will always be given, but when subscribers remit their money by mail, they may consider the arrival of the first paper a bonafide acknowledgment of the receipt of their funds.

BACK NUMBERS AND VOLUMES—In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement: Of Vols. 1, 2, 3, and 4—none. Of Vol. 5, all but six numbers, price, in sheets, $1; bound, $1,75. Of Vol. 6, all; price in sheets, $2; bound, $2,75. Of Vol. 7, all; price, in sheets, $2; bound, $2,75. Of Vol. 8, all; price, in sheets, $2; bound, $2,75.

PATENTEES—Remember we are always willing to execute and publish engravings of your inventions, providing th ey are on interesting subjects, and have never appeared in any other publication. No engravings are inserted in our columns that have appeared in any other journal in this country, and we must be permitted to have the engravings executed to suit our own columns in size and style. Barely the expense of the engraving is charged by us, and the wood-cuts may be claimed by the inventor, and subsequently used to advantage in other journals.

GIVE INTELLIGIBLE DIRECTIONS—We often receive letters with money enclosed, requesting the paper sent for the amount of the enclosure, but no name of State given and often with the name of the post-office also omitted. Persons should be careful to write their names plainly when they address publishers, and to name the post-office at which they wish to receive their paper, and the State in which the post-office is located.

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Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

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ENGRAVINGS FOR SALE.—The large full page engraving of the internal view of the Crystal Palace which appeared in the Scientific American, last Vol., will be sold with the small ornamental cuts which have appeared under the Crystal Palace head in this volume at the mere cost of electrotyping, by application at this office.

ENGINEERING.—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic, Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc., etc.

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AMERICAN ENGINEERS ASSISTANT.—Lately published.—The American Engineer, Draftsman and Machinist's Assistant, designed for Practical Workingmen, Apprentices, and those intended for the Engineering profession, illustrated with 200 wood cuts, and 14 large engraved Lithographic Plates, of recently constructed American Machinery and Engine Work; by Oliver Byrne. Embracing—Mathematical and Drawing Instruments, Geometrical Problems, Brackets and Pillow Blocks, Lubricators, and Electric Steam Gauge, Horse Power, Parallel motions, The Indicator, Safety Valves, High Pressure Engines, Steamship Engines and Boilers, Rotary Engine, Locomotives, Screw Propellers, Ericsson's Caloric Engine, &c., &c. The work is published in one large 4to vol., handsomely bound, and sold at the low price of $5. It will be sent to any part of the United States free of Postage, on receipt of the amount by mail. A liberal discount made to Agents and Booksellers. Address, C. A. BROWN & CO. Publishers, N. W. Cor. of 4th and Arch streets, Philadelphia. 6 6

UNITED STATES PATENT OFFICE,
Washington, Sept. 28, 1853.

ON THE PETITION of Herrick Aiken, of Franklin, New Hampshire, praying for the extension of a patent granted to him on the twenty-seventh day of Dec., 1839, for an improvement in constructing sockets for holding tools, for seven years from the expiration of said patent, which takes place on the twenty-seventh day of December, eighteen hundred and fifty-three—

It is ordered that the said petition be heard at the Patent Office on Monday, the 19th of December next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvania, Philadelphia, Pennsylvania; Evening Post, and Scientific American, New York; Boston Post, Boston, Massachusetts, and Patriot, Concord, New Hampshire; Enquirer, Cincinnati, Ohio, once a week for three successive weeks previous to the second Monday of January next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S.—Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 6 3

WE WANT TO CONTRACT FOR TUBULAR Boilers, from 8 to 20 horse power. Address HALL & BOLLINGER, Fayetteville, N. C. 5 3*

WATTS, BELCHER & CO.—Machinists, Manufacturers of Steam Engines, Lathes, Planing Machines, and Machinists' Tools of all descriptions. Jobbing promptly attended to. Passaic Works, Passaic st. Newark, N. J. WM. WATTS, ZACHARIAH BELCHER, & GEO. WATTS. 6 4*

FARMER.—WANTED—By a young man familiar with the late improvements in Agriculture, a situation as Superintendent of a farm at a liberal salary, or a furnished farm to work at a percentage. Address A. G. F., at V. B. Palmer's Advertizing Agency, Tribune Buildings. May be seen at the Girard House until the 22nd inst., between the hours of 7 and 10 A. M., on enquiring at the office. 6 2*

MATHEMATICAL OPTICAL INSTRUMENTS.—The subscriber begs leave to bring to the notice of the professional community, his new and extensive assortment of the above Instruments, which he partly imported direct from the most celebrated makers in Europe and partly had manufactured under his own personal supervision. The undersigned would particularly invite attention to his very large and complete assortment of the justly celebrated Swiss Mathematical Drawing Intsruments, for the sale of which in this country he has the sole Agency, and which he can furnish at from $5 to $200 per case. Orders from any part of the Union promptly executed, and price list sent if required.

3 6eow C. T. AMSLER, 224 Chestnut st., Philadelphia.

MECHANICAL DRAWINGS—J. H. BAILEY. Mechanical or Architectural Drawings executed in all kinds of perspective. Office Tryon Row, No. 5, opposite the City Hall. 5 4*

STEAM ENGINES FOR SALE.—Two new and three second-hand high-pressure, with boilers complete.—Also new Gear Lathes, and other machinery. Inquire at J. Burns' Engineers and Contractors Office, 192 Broadway corner of John street. New York. 6 2*

COCHRAN'S QUARTZ CRUSHER—These machines having proved by practical operation at various gold mines their superiority over all others, for pulverising Quartz Rock, are recommended with confidence to parties in want of such machinery. A machine can be seen in daily operation in this city, on application to JOHN S. BUSSING & CO.,
4 8t 32 Cliff street, N. Y.

EUREKA GOLD SEPARATOR—This machine has been thoroughly tested by scientific and practical gold miners, and pronounced far superior to any Analgamator yet known—an Alalgamator taking up but three feet square, and very trifling power, is capable of amalgamating one ton per hour, with great ease and perfection, without any loss of quicksilver whatever. They are portable, and delivered in boxes ready for shipment. Price $300 each. Further information can be obtained on application to JOHN S. BUSSING & CO.,
4 8t 32 Cliff street, N. Y.

NEWELL'S PATENT SAFETY LAMP AND Lamp Feeder—A new article warranted to prevent all accidents from the use of Burning Fluid, Camphene and other explosive compounds, used for the production of light. For sale, wholesale and retail, by NEWELL, CALDWELL, & COFFIN, 28 Broomfield street, Boston, and by G. W. McCREADY,
4 5t* 426 Broadway, N. Y.

THE NEW HAVEN MANUFACTURING CO.—New Haven, Conn., having purchased the entire right of E. Harrison's Flour and Grain Mill, for the United States and Territories, for the term of five years, are now prepared to furnish said mills at short notice. These mills are unequalled by any other mill in use, and will grind from 20 to 30 bushels per hour of fine meal, and will run 24 hours per day, without heating, as the mills are self-cooling. They weigh from 1400 to 1500 lbs., of the best French burr stone, 30 inches in diameter; snugly packed in a cast-iron frame, price of mill $200, packing $5. Terms cash. Further particulars can be had by addressing as above, post paid, or to S. C. HILLS, agent N. H. M. Co., 12 Platt st., N. Y. 5 tf

NEW HAVEN MANUFACTURING COMPANY—Tool Builders, New Haven, Conn., (successors to Scranton & Parshley) have now on hand $25,000 worth of Machinists' Tools, consisting of power planers, to plane from 5 to 12 feet; slide lathes from 6 to 18 feet long; 3 size hand lathes, with or without shears; counter shafts to fit all sizes and kinds of universal chuck gear cutting engines; drill presses, index plates, bolt cutters, and 3 size slide rests. The Company are also manufacturing steam engines. All of the above tools are of the best quality, and are for sale at 25 per cent. less than any other tools in the market. Cuts and list of prices can be had by addressing as above, post-paid. Warehouse No. 1 Platt st., New York, S. C. HILLS, Agent N. H. Manufacturing Co. 5tf

PLANING, TONGUING, AND GROOVING—BEARDSLEE'S PATENT.—Practical operation of these Machines throughout every portion of the United States, in working all kinds of wood, has proved them to be superior to any and all others. The work they produce cannot be equalled by the hand plane. They work from 100 to 200 feet, lineal measure, per minute. One machine has planed over twenty millions of feet during the last two years, another more than twelve millions of of feet Spruce flooring in ten months.. Working models can be seen at the Crystal Palace, where further information can be obtained, or of the patentee at Albany, N. Y
1 tf GEO. W. BEARDSLEE.

PARSONS' SELF-STRAINING SAW—Requires only ten pounds' weight to strain it, and combines the advantages of both muley and gate or sash mills, will bear as much feed, is as easily kept in order, will cut as much lumber with one-fourth less power, and is in successful use in five States. A working model is in the Crystal Palace, where further information can be had, or of the proprietor at Wilkesbarre, Penn.. JAMES JONES. S. E. PARSONS, Agent.

PATENTS OF INVENTION—ISAAC B. FUTVOYE, Patent Agent, Quebec, undertakes to procure letters patent of invention for the Province of Canada. I. B. F. will dispose of any kind of Patented Articles on Commission. 4 tf

A. B. ELY, Counsellor at Law, 52 Washington street, Boston, will give particular attention to Patent Cases. Refers to Messrs Munn & Co., Scientific American. 16tf

LEONARD'S MACHINERY DEPOT, 109, Pearl st., and 60 Beeaver, N. Y.—Leather Banding Manufactory, N. Y.—Machinist's Tools, a large assortment from the "Lowell Machine Shop," and other celebrated makers. Also, a general supply of mechanics' and manufacturers' articles, and a superior quality of oak-tanned Leather Belting. P. A. LEONARD.
1tf

LOGAN, VAIL & CO., No. 9 Gold st., New York.—Agency for Geo. Vail & Co., Speedwell Iron Works, Morristown, N. J., furnish and keep on hand Portable Steam Engines of various sizes, Saw and Grist Mill Irons, Hotchkiss's Water Wheels, Iron Water Wheels of any size, Portable Saw Mills, complete; Bogardus's celebrated Planetary Horse Powers; heaving forgings and castings for steamboats and rolling mills, Ratchet Drills of superior quality for machinists, Saw Gummers, Hand Drills, Tyre Benders, and shafting and machinery generally.
39 1y

NORCROSS ROTARY PLANING MACHINE.—Decided by the Circuit Court not to infringe the Woodworth Machine—I now offer my Planing Machines at a low price; they are not surpassed by any machines as to amount or quality of work. Tongueing and grooving machines also for sale, doing one or both edges as desired; 80 machines now in operation. Address me at Lowell, Mass., N. G. NORCROSS.
40 20*

MCALLISTER & BROTHER.—Opticians and dealers in mathematical instruments, 48 Chesnut st., Philadelphia, Pa. Mathematical instruments separate and in cases, Protractors, Spacing Dividers, Drawing Pens, Ivory Scales, Tape Measures, Salometers, Spy Glasses, Microscopes, Hydrometers, &c., &c. An illustrated and priced catalogue will be sent by mail free of charge. 40 6m*

VALUABLE WATER POWER FOR SALE.—Situated in Stockport, Columbia Co., N.Y., 1 1-4 miles from a depot on the Hudson River Railroad, on a never-failing stream, now estimated to be of the capacity to run 600 power looms with all necessary machinery, and may be increased; dam built of stone, 19 feet fall. The improvements on one side consists in part of a building of stone and brick 118x47; over-shot wheel, nearly new, 14 feet diameter, 12 feet bucket; on the other, one of stone and wood 60x34, good over-shot wheel 14 feet diam. 7 feet bucket; with about 30 dwellings. Terms accommodating; title indisputable. Possession given immediately. For particulars inquire of R. B. MONELL, of Hudson, N. Y., or H. S. VAN DeCARR on the premises. 3 6*

PALMER'S PATENT LEG.—Manufactured by Palmer & Co., at No. 5 Burt's Block, Springfield, Mass., for New England and New York States, and 376 Chesnut street, Philadelphia; in every instance of competition in the Fairs of the various Institutes of this country, it has received the highest awards as "the best" in mechanism, usefulness, and economy. At the "World's Fair," London, 1851, in competition with thirty other varieties of artificial legs, (by the best artists in London and Paris,) it received the Prize Medal as the best. 48 10*

NORRIS WORKS, Norristown, Pa. The subscribers build and send to any part of the United States, Pumping, Hoisting, Stamping, and Portable Engines, and Mining Machinery of every description.
41 1y. THOMAS, CORSON & WEST.

PIG IRON—The subscriber has always on hand a stock of the best brands of American and Scotch Pig Iron, for sale at the lowest market price. G. O. ROBERTSON, 135 Water st, cor. Pine, N. Y. 18*

AARON KILBORN, No. 4, Howard street, New Haven, Ct., manufacturer of Steam Engines, Boilers, &c. Noiseless Fan Blower, a superior article, for smith's work, steam engines, brass and iron founders, and machinery in general. 51 10*

IRON FOUNDERS' MATERIALS. viz: Pulverized Sea Coal, Black Lead, Soapstone, Anthracite and Charcoal Facings. Also, best imported Fire Bricks, Fire Clay, Fire Sand, and Moulding Sand, for sale by
G. O. ROBERTSON,
1 8t* 135 Water street, corner of Pine.

ALDEN'S PATENT FAN BLOWER—Gives a stronger blast, with less power than any other.
2 6* J. B. CHICHESTER, Agent, 585 Broadway, N. Y.

C. B. HUTCHINSON'S PATENT STAVE Cutting Machines—The best in use, and applicable alike to thick and thin staves, for barrels, hogsheads, &c.; also his Head Cutting and Turning, and Stave Jointing and Crozing Machines. This machinery reduces the expense of manufacturing at least fifty per cent. For machines or territorial rights, apply to C. B. HUTCHINSON & CO., Syracuse, N. Y. 2tf

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Scientific Museum.

Imponderable Agents.---No. 4.

1. There are in nature three elements, existing in a form exceedingly more rare than that of the lightest fluids; these elements may be called Etheroids.

2. The Etheroids exist both in combination with other matter and in a free state, nor has any portion of matter been discovered that does not contain them.

3. Etherial particles of the same kind always repel each other, but they both attract and repel all other matter,—their attractions and repulsions varying inversely as the square of the distance.

4. From their mutual repulsion they constantly tend to diffuse equally throughout space —hence, if accumulated in any place, they radiate thence in all directions.

5. When in motion each particle rotates upon an axis, those of the same kind differing in their period of rotation, magnitude, and velocity.

6. Each particle has two poles at right angles to its axis of rotation, the one attractive, the other repulsive.

7. When a particle in motion strikes upon any body, it will enter it if its attractive pole be next the surface, but will be reflected from it if its repulsive pole be next the surface, unless the body be too thin to overcome its momentum. The same happens at the second surface.

8. A chemical molecule is the aggregation of a definite quantity of the ultimate atoms of any element around a definite number of etherial particles, which are arranged in the molecule with their attractive poles outward.

9. The attraction of the Etheroids in one molecule, for the matter in another molecule of the same kind, is greater than their mutual repulsion; from this results cohesion.

10. Gravitation is the result of this attraction when exhibited between two masses.

11. Chemical combination is the intimate union of two or more molecules differing in the quantity of the Etheroids contained, and upon this difference depends their relative affinity.

12. A solid is an aggregation of molecules whose attractions are so great as to hold them firmly fixed in their places.

13. A liquid is a body which has a sufficient quantity of the Etheroids diffused among its molecules to prevent their close adhesion, but not sufficient to wholly overcome their cohesive attraction.

14. A gaseous fluid is one in which, from the presence of a larger proportion of the Etheroids, the cohesive attraction is entirely overcome.

15. The three Etheroids may be called Lumenism, Calorism, and Electrism, producing, respectively, the phenomena of Light, Heat, and Electricity.

16. When an etherial particle in motion enters at an oblique angle, a medium differing in density from that through which it has been passing, it is attracted by the nearest molecule of the densest medium and bent from its course —this is called refraction.

17. Those particles having the greatest momentum will be the least changed in their course, hence the different refrangibility of etherial particles.

18. If the refracting body be crystalline, the body will generally, from the peculiar arrangement of its molecules, attract the etherial particles, in two different directions; the direction taken by any particle depending on the position of its poles—this is double refraction.

19. When an etherial beam has been doubly refracted, each emergent pencil has all its axes of rotation in a single plane, and these planes, in the two pencils, are at right angles to each other—this is polarization.

20. Light is Lumenism in motion. The different colors of the spectrum are caused by the different momenta of its particles.

21. The color of a thin plate is that of a lumenic particle, which, during its semi-period of rotation, passes over a space equal to the thickness of the plate. The colors of opaque bodies are caused by their particles being of a corresponding size.

22. White opacity is caused when the particles of the body are of such a nature as to destroy the motion of all the Lumenism which is not reflected from their first surface. Black opacity results when the particles are of a similar nature, and are at the same time too small to reflect any portion of the Lumenism. Transparency results when the particles are too small to reflect, yet have no power to destroy the motion of the Lumenism.

23. Heat is calorism in motion; its intensity is the sum of the momenta in its particles.

24. The specific capacity of any body for heat, is inversely as the amount of calorism combined with its molecules, and directly as the square of the distances of the molecules from each other.

25. Electricity is the presence of a greater or less portion of free Electrism in any body, than is contained in surrounding bodies.

26. Electrical attraction is the attraction between the matter in one body having less, and the Electrism in another body having more than the mean quantity.

27. Electrical repulsion between bodies positively electrified is the repulsion of their electric particles, between bodies negatively electrified it is the attraction of surrounding objects.

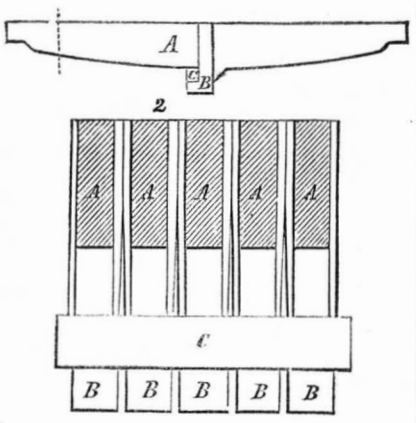
28. Voltaic Electricity is a current of Electrism set free from its combinations by the union of elements at the positive pole, and passing from thence to the negative pole of the voltaic battery.

29. Magnetism is the result of an electric current moving spirally around the magnet from one pole to the other.

30. Magnetic attraction is the result of a motion of the two currents in the same direction, and repulsion of a motion in opposite directions.

Improved Grate Bars.

FIG. 1.



The annexed engravings are views of an improvement in grate bars for furnaces, &c., invented by Samuel Vansyckel, of Little York, New Jersey, and for which a patent was granted on the 3d of last August. Fig. 1 is a side view of one of the bars, and fig. 2 is a transverse section, through a number of bars in a furnace. The same letters refer to like parts. The object of the improvement is to prevent the bars from warping by heat, and the nature of the improvement consists in casting, or otherwise securing to the under sides of grate bars, catches, through a series of which a bar is passed and held, which prevents the grate bars from twisting by the heat, or from falling down, if one end should slip off. A represents the grate bars, each having a hook, or catch, B, either cast or otherwise, secured to it; C is an iron rod; it is framed through the catches of a series of bars, A, forming the grate. The catches, B, may be made square, or round, or angular; the rod, C, being always of a corresponding shape. The catches, or hooks, project below the grate to such a distance, to prevent them, or the rod, from being effected by the extreme heat of the fire. A fastening is not found necessary for the rod, but, if required, wedges may be used. If the grate bars are very long, two or more sets of catches and rods may be employed. The action of the rod, C, is to hold down the grate bars, which have a tendency to warp in the upward direction, and to prevent any of the grate bars from slipping down, if drawn from its end bearings.

The advantages of thus constructing and combining grate bars, over that of common grate bars, which are cast in sections, with permanent braces between them, are, 1st, the spaces between the bars, A, for the draft, may be varied by shifting the bars on the rod, C, so as to increase or diminish the space between the bars. 2nd, the improvement avoids the necessity of closing up any part of the draft space between the grate bars, and allows the fire being raked the whole length of the grate. 3d, the ends of the grate bars are free to expand, while the centers are held firmly in their places, which decreases their tendency to warp. Grate bars made upon this plan have been thoroughly tested, with the most surprising and satisfactory results. The patentee states, that in a fair practical test, they have lasted twice the length of time of ordinary grate bars. The claim is, forming each bar with a catch, or catches, B, on the under side, and uniting a series of bars by the rod, C, as shown.

More information may be obtained by letter addressed to the patentee.

Morse's Telegraph in Switzerland.

The following is from Mr. Prime, one of the Editors of the "New York Observer," who is now travelling in Europe :—

"The boat leaves Lucerne several times a day, to make the excursion of the lake, and I have enjoyed more of the beauty and grandeur it presents, than most of the travellers are willing to take time for. I waited some days there for the senior editor (S. E. Morse) to join me, as I had heard of his arrival in Europe, and that he would soon be in Switzerland. The telegraph has found its way across the mountains and the valleys of Switzerland, and as I was getting impatient, I went to the office in Lucerne to see if I could not send an electric spark to him somewhere between this and Basle. The operator read my message, which was done into decent German, and seeing the name of Morse, said to me that he used Morse's instrument in his work. He was greatly pleased when I told him the relations of my correspondent with the inventor of the telegraph, and we went to work to get the wires into communication with him. 'Now,' said he, 'we are receiving a message from Italy, from Lugano; the line crosses the Alps at the pass of St. Gothard! It works very badly; there must be a thunder storm among the mountains, or perhaps on the other side. Yard after yard of the paper was worked off the reel, and I felt perhaps more vividly than ever before, the value and beauty of this American invention, which transmits thought in an instant over Alpine barriers, causing it to traverse regions of eternal ice and snow, and to enter the heart of a friend in another and a distant clime."

Digging Wells in Quicksand.

A correspondent in the "Genesee Farmer" communicates the following valuable information in reference to the best mode of digging wells in quicksand. He says :—

"Thinking that it may be of importance to some of your readers, I will give some of my experience in digging wells in quicksand. My father was digging a well where the quicksand run in so bad that he was led to contrive some way to remedy the evil resulting from it. His plan is, (when you get down where the sand runs in so as to prevent working at advantage,) to make a platform to lay the wall on, out of plank, by pinning them together; place this on the bottom, and then lay a wall of good hard brick and water lime. When you get above where there will be any danger of the sand caving in, you can go on and dig the well as deep as you please, and the wall will settle down as fast as you take out the sand under it. We have settled a well two feet after it had stood for years. I was led to send this from hearing of the difficulty they had in digging wells at Geneva."

Photographic Discovery.

A late letter from Berlin says :—"It is well known that the paper prepared for photography grows more or less black by rays of light falling on it. One of our young painters, M. Schall, has just taken advantage of this property in Photographic paper to determine the intensity of the sun's light. After more than 1,500 experiments M. Schall has succeeded in establishing the scale of all the shades of black which the action of the solar light produces on the photographic paper; so that, by comparing the shade obtained at any given moment on a certain paper with that indicated on the scale, the exact force of the sun's light may be ascertained. Baron Alexander Von Humboldt, M. de Littnow, M. Dove and M. Pongendorff, have congratulated M. Schall on this invention, which will be of the highest utility, not only for scientific labors, but also in many operations of domestic and rural economy.—[Ex.

[Not a particle of reliance can be placed on the above discovery, as set forth. There can be no such a thing as a scale of *black shades*, and besides photographic paper grows dark by simple exposure to the atmosphere.

LITERARY NOTICES.

ILLUSTRATED HYDROPATHIC QUARTERLY REVIEW—This is the title of a new magazine, published by Fowlers & Wells, of this city, and devoted to Hydropathy. In it are some very excellent articles, but we cannot agree with the views of the work as a whole. There is, without doubt, much that is wrong in any empiric system for the treatment of disease, whether water, homœopathy, strong doses of quinine, bleeding, &c., but any one of these modes of treatment is useful in the treatment of particular cases. The free use of water conduces to preserve health, by keeping the pores of the skin open so as to allow free perspiration, and this is all that is required of persons in a healthy state. As a remedy in many diseases, its claims are now better and more generally appreciated, but experience alone can tell when to apply it and on whom.

THE ILLUSTRATED MAGAZINE OF ART—A. Montgomery, 17 Spruce street, N. Y., publisher. Price of each number, 25 cents. This elegant publication has now nearly reached the close of its second volume, and has already, as we learn, attained to a very large circulation. This is as it should be, for in point of artistic and literary merit, it is the best work of the day. The engravings are very numerous and are done in the very best manner.

THE POPULAR EDUCATOR—This is the title of an excellent periodical devoted to a general system of instruction upon all important branches—language, natural history, fine arts, physical, and industrial sciences, philosophy, civilization, miscellany, are all treated in a free and popular manner. It is issued in Parts at 121-2 cents each, or $1,50 per annum. Published as above.

BOOK OF THE WORLD—This interesting publication has reached the second number of Vol. 2. Each part contains from 4 to 6 beautiful steel and colored engravings on all kinds of interesting topics, horticulture and natural history forming a large share of its contents. Weik & Wieck, publishers, Philadelphia, Pa. Price 25 cts. per number, $3 a volume.

ILLUSTRATED ENGLISH GRAMMAR—We have been presented with the map, on cloth, of the "Ornamental Grammar Tree," by Rufus Blanchard, of this city, published by J. H. Colton : it shows the classification, and properties of the parts of English speech, and will be very useful for teachers and pupils. On one corner is a fine lithograph of the Free Academy in this city.

MECHANICS

Manufacturers and Inventors.

The present Volume of the SCIENTIFIC AMERICAN commences under the most gratifying assurances, and appearances indicate a very marked increase to the subscription list. This we regard as a flattering testimonial of the usefulness and popularity of the publication so generously supported. We are greatly indebted to our readers for much valuable matter, which has found a permanent record on its pages. The aid thus contributed has been most important to our success, and we are grateful for it.

From our foreign and home exchanges—from the workshops, fields, and laboratories of our own country, we have supplied a volume of more than four hundred pages of useful information, touching every branch of art, science, and invention, besides hundreds of engravings executed by artists exclusively in our employ.

The present Volume will be greatly improved in the style and quantity of the Engravings, and in the character of the matter, original and selected. Having every facility for obtaining information from all parts of Europe, we shall lay before our readers, in advance of our cotemporaries, a full account of the most prominent novelties brought forward.

The opening of the Crystal Palace in this city, forms an interesting subject for attraction. We shall study it faithfully for the benefit of our readers, and illustrate such inventions as may be deemed interesting and worthy.

The Scientific American is the Repertory of Patent Inventions: a volume, each complete in itself, forms an Encyclopedia of the useful and entertaining. The Patent Claims alone are worth ten times the subscription price to every inventor.

PRIZES!! PRIZES!!

The following Splendid Prizes will be given for the largest list of mail subscribers sent in by the first of January next:

$100 for the largest list.		$30 for the 7th largest list.	
$75 for the 2d largest list.		$25 for the 8th	ditto
$50 for the 3d	ditto	$20 for the 9th	ditto
$45 for the 4th	ditto	$15 for the 10th	ditto
$40 for the 5th	ditto	$10 for the 11th	ditto
$35 for the 6th	ditto	$5 for the 12th	ditto

The cash will be paid to the order of the successful competitors immediately after January 1st, 1854.

These prizes are worthy of an honorable and energetic competition, and we hope our readers will not let an opportunity so favorable pass without attention.

TERMS! TERMS!! TERMS!!!

One Copy, for One Year	$2
" Six Months	$1
Five copies, for Six Months	$4
Ten Copies, for Six Months	$8
Ten Copies, for Twelve Months	$15
Fifteen Copies for Twelve Months	$22
Twenty Copies for Twelve Months	$28

Southern and Western Money taken at par for Subscriptions, or Post Office Stamps taken at their par value.

Letters should be directed (post-paid) to

MUNN & CO.,
128 Fulton street, New York.

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